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ABSTRACT

Chapter 1 discusses the general characteristics of the Teaching Assistant (TA) system: popular interest in the problems of TAs, origins and shortcomings of the TA system, the purpose of doctoral training, the Ph.D. "stretchout," and career interests and decisions of doctoral students. Chapter 2 deals with statistical dimensions: relationship of TA s to enrollments and faculty; distribution by type of institution; concentration in large institutions; graduate enrollments and doctoral degrees conferred at large institutions in 1959 and 1963; trends in graduate enrollment and financial support in 1954 and 1965; number and distribution of graduate student stipends by type and academic area in 1954 and 1965; work performed by graduate assistants, and differing perspectives regarding the TA's role. In Chapter 3 reports from Michigan State, Cornell, and the University of California, proposing reforms in current conceptions and procedures are analyzed. The University of Rochester survey, "The Graduate Student as Teacher," recommendations of the Committee on Student Aid of the Association of Graduate Schools, the Koen-Ericksen Model Training Program, and other studies are also briefly dealt with. Chapter 4 reviews the findings and presents conclusions. Statistical tables are presented in the appendix. (AF)

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GRADUATE TEACHING ASSISTANTS IN AMERICAN UNIVERSITIES: A REVIEW OF RECENT TRENDS AND RECOMMENDATIONS

by
John L. Chase, Chief
Research and Analysis Staff
Division of University Programs
Bureau of Higher Education

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
Robert H. Finch, Secretary

James E. Allen, Jr., Assistant Secretary
and Commissioner of Education

Stecher

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FOREWORD

Approximately 2 or 3 years ago when the Bureau of Higher Education was carrying out its continuing task of identifying issues which would bear on the future quality of higher education, Dr. John L. Chase, a senior and widely recognized investigator in the Office of Education, suggested that the role and effectiveness of teaching assistants merited comprehensive study. His suggestion met a ready response. While it was soon evident that funds for a comprehensive original investigation were not available, Dr. Chase nevertheless moved forward, relying upon secondary data sources and isolated institutional studies of the subject.

The result of his efforts is a highly readable and informative study in which he not only brings together the results of numerous studies and papers concerning teaching assistants, but adds his own analysis and interpretation with decisive insight.

Recent waves of campus unrest and disruption have brought a renewed interest in good teaching. The position of teaching assistants has relevance to some of the actual issues of campus unrest, particularly in institutions with large graduate enrollments at the doctoral level. Certainly in these institutions, with varying degrees of participation, the teaching assistant has a real impact on the quality of undergraduate instruction. At the same time, the teaching assistant is concerned with how his assistantship obligations may impede the rate at which he can move toward an advanced degree. Furthermore, he and others are concerned with the quality of his performance as a teacher since it is from the ranks of the teaching assistants that many future college and university teachers will come. Finally, to know of the extensive instructional responsibilities actually carried out by teaching assistants is a constant reminder of what may, in fact, be the best indication of current shortages of qualified faculty, especially for freshman-sophomore courses.

In this study, the author does not limit himself to describing the status and problems of teaching assistants within the framework of the academic hierarchy, but in a positive fashion makes recommendations for improving the system for the betterment of all affected by it.

The study merits the attention of university administrators and faculty; also of graduate students who labor in the academic vineyard for remuneration as well as for meaningful teaching experience.

I cannot conclude this foreword without expressing my appreciation to those individuals who provided data and to the many who have published works on various phases of the problems and issues with which this study deals.

J. Wayne Reitz, Director
Division of University Programs
Bureau of Higher Education

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CHAPTER I GENERAL CHARACTERISTICS OF THE TEACHING ASSISTANT (TA) SYSTEM

Popular Interest In The Problems of Teaching Assistants

The literature of higher education in recent years contains many references to the role of graduate teaching assistants–an indication of a growing popular interest in and concern for the quality of undergraduate instruction.

A fairly early example is Bernard Berelson's comment in his 1960 study of graduate education:

> It is no secret that the teaching assistant, more often than not, now handles the dirty work in university instruction (one dean calls them the "intellectual dishwashers"). [1]

In the mid-1960's an educational foundation officer, after visiting numerous universities to examine programs of teacher training, reported:

> The universities, in their need to staff elementary courses, have thoroughly abused and prostituted the chief means of training prospective college teachers–the teaching assistantship.[2]

Following lengthy hearings during the 89th Congress, a subcommittee investigating the quality of teaching in the sciences concluded:

> Considering the shortage of college teachers and the rising undergraduate enrollments, it is clear that teaching assistants will for some time be a part of the educational scene. The quality of the teaching they perform will depend in large part on the attitude toward teaching exhibited by the institutions they serve. The basic problem is the development of institutional attitudes that will foster the best teaching it is possible to obtain. *Perhaps the time has come for a real reassessment of the use of teaching assistants, and a re-evaluation, by institutions of higher education, of their responsibility to provide adequate supervision and guidance.*[3] [Emphasis added.]

Another congressional subcommittee, investigating the impact of Federal research programs on higher education, found a connection between the use of teaching assistants and recent campus disturbances:

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[1] **Bernard Berelson, *Graduate Education in the United States.* (New York: McGraw-Hill, Inc., 1960), p. 67.**

[2] **W. Max Wise, "Who Teaches the Teachers?" in Calvin B. T. Lee (ed.) *Improving College Teaching: Aids and Impediments* (Washington: American Council on Education, 1966), p. 90.**

[3] ***Higher Education in the Sciences in the United States.* Report of the Subcommittee on Science, Research and Development, Committee on Science and Astronautics, House of Representatives, 89th Congress, 1st Session, Serial I (Washington: Government Printing Office, 1965), p. 79.**

> ... Students have protested that they cannot have contact with experienced professors, either in or out of the classroom. They complain that they are being taught by graduate students, themselves as much concerned with completing their own studies as with teaching undergraduates; and not the best graduates, because the best ones are themselves involved in research.[4]

The chairman of a department of history, commenting on the present inadequate funding of graduate study, offered this observation:

> Funds often are so administered that a student is almost sure to fail to accomplish all that is expected of him. The so-called teaching assistantship is a particular illustration. In practice they penalize the studies of a student if he is serious about his teaching, and penalize his teaching if he is serious about his studies. Consequently, he is put in the pickle of choosing between victimizing himself and victimizing the freshmen he teaches. The graduate student is likely to learn early that to slight teaching is the price of academic survival.[5]

Similar quotations, which could be cited from many other sources, would only serve to underscore the point: There is a growing awareness–spreading from within academia to interested groups outside–that there are many serious problems associated with the utilization of graduate teaching assistants in contemporary American higher education. And these problems are of sufficient importance to growing numbers of people to merit careful and thorough analysis.

Before proceeding, however, it should be pointed out that the expression "teaching assistant" (TA), as used in this report, is a generic, not a specific term. The specific titles used by universities to designate graduate students who perform instructional duties vary widely from one institution to another, and even within institutions. One university, for example, after examining its own practices, found that its departments employed 14 different titles to designate such individuals. These included such designations as "assistant lecturers," "readers," "laboratory assistants," "proctors," and so on. The common identifying characteristics, however, are that the individuals perform instructional functions (broadly defined) of some kind, that they are not regular faculty, and that they are (usually) graduate students working toward advanced degrees. A convenient shorthand term, referring to the practice of employing graduate students in undergraduate instruction, is the TA System.

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[4] *Conflicts Between the Federal Research Program and the Nation's Goals for Higher Education: Responses From the Academic and Other Interested Communities to an Inquiry by the Research and Technical Programs Subcommittee of the Committee on Government Operations*, House of Representatives, 89th Congress, 1st Session, Committee Print (Washington: Government Printing Office, 1965), p. 1.

[5] Ralph Morrow, "Preparation and Internship of College Teachers," in G. Kerry Smith (ed.) *Current Issues in Higher Education: Undergraduate Education* (Washington: Association for Higher Education, National Education Association, 1964), p. 120.

Origins of the TA System

There is, unfortunately, no good history on the use of graduate teaching assistants in American higher education. Richard Storr's account of the beginnings of graduate study in America describes several attempts to provide financial support for students, most of which failed. Of these early efforts, he has written:

> By 1861 it was apparent that to induce young men to undertake graduate study, a practical incentive as well as a love of knowledge was required. Repeatedly, after 1850, educators pointed out the need for financial aid to advanced students. . . . This was one of the few proposals on which agreement was general.[6]

Whatever the agreement in principle, the actual provision of material support was a long time in coming. Apparently the first large-scale successful effort came with the establishment of the Johns Hopkins University in 1876. An essential part of President Daniel C. Gilman's plan was to recruit outstanding graduate students by awarding 20 fellowships a year—then considered a large number. Gilman's example in this respect was subsequently followed at both Clark University and the University of Chicago, and no doubt had much to do with the success of these institutions in launching their doctoral programs.[7] Although these fellowships were considered quite generous (usually $400 to $500 a year) and apparently required no service in return, they were not always adequate to meet student needs. For example, one of the early teachers at Hopkins observed that although Woodrow Wilson held one of the coveted fellowships, "like many other graduate students, Wilson lectured in the outlying towns to supplement his income."[8] From a practice of lecturing outside of the university, it was doubtless an easy transition to lecturing to undergraduates—in all probability the origin of the TA System.

At any rate, the rapid growth of graduate enrollments and of the subsidizing of graduate students through undergraduate teaching became a familiar feature of most graduate schools during the last decade or so of the 19th century. That the plight of graduate teaching assistants has not changed greatly over the years is suggested by the following recollection of a TA from that earlier period:

> After spending a year in graduate study at Harvard, I was appointed by President Eliot Instructor in English. . . . I read and marked over seven hundred themes a week – most of them were short themes, but some were not. Whenever I entered my room, I was greeted by the huge pile of themes on the table, awaiting my attention. I read very few books the

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[6] **Richard J Storr, *The Beginnings of Graduate Education in America* (Chicago: University of Chicago Press, 1953), pp. 130-131.**

[7] **W. Carson Ryan, *Studies in Early Graduate Education* (New York: Carnegie Foundation for the Advancement of Teaching, Bulletin No. 30, 1939), pp. 32, 33, 56, 120.**

[8] **Richard T. Ely, *Ground Under Our Feet* (New York: Macmillan, 1938), p. 109.**

> whole year – there was no time. I never went to bed before midnight. With the highest respect and admiration for my colleagues, nothing on earth would have induced me to continue such brain-fagging toil another year.[9]

Whatever the similarities between the earlier and more recent periods, it was, of course, the great influx of students after World War II – a time when there was a shortage of qualified senior faculty at universities – that brought the TA System into full flower and, in so doing, made possible a great increase in graduate school enrollments. The inseparability of the two developments was clearly set forth in an early analysis by Professor Charles Kraus of Brown University:

> In many instances, graduate schools have been developed for the purpose of providing assistants for the undergraduate division. The graduate student is in need of funds with which to pay his way. . . . the undergraduate school is able to obtain a greater amount of service per dollar from graduate students than from regularly qualified instructors. . . .
>
> This system is not ideal, either from the standpoint of the graduate student or from that of the college. Yet it has some merit; after all, half a loaf is better than no loaf. Without these graduate assistantships, many promising men would be unable to undertake graduate work.[10]

To bring this brief survey up to date, the ensuing account of the current situation is included:

> The character of most faculties has changed not only over the past hundred years but even over the past thirty. Until World War II even senior scholars at leading universities did a good deal of what they defined as scut work, teaching small groups of lower-level students, reading papers and examinations, and so forth. . . . Today, however, few well-known scholars teach more than six hours a week, and in leading universities many bargain for less. Even fewer read undergraduate examinations and papers. At the same time the AAUP and other faculty groups have pushed through "up or out" rules on faculty promotion, so that the permanent assistant professor is now practically unknown at leading universities. *The routine problems of mass higher education have therefore fallen by default to graduate students.* These students have assumed the role of ship stewards, mediating between the highly professionalized faculty who run the curriculum and the still amateur undergraduates who pursue it. Graduate teaching assistants handle quiz sections, read exami-

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[9] William Lyon Phelps, *Teaching in School and College* (New York: Macmillan, 1912) pp. 119, 120. Shortly after Phelps left Harvard, Bliss Perry, a noted professor of English there, observed that he had almost no contact with his undergraduates and that the success of his large lecture courses depended on graduate teaching assistants. See his *And Gladly Teach* (Boston and New York: Houghton Mifflin, 1935), p. 247.

[10] Charles Kraus, "The Evolution of the American Graduate School," *AAUP Bulletin*, Vol. 37, No. 3 (Autumn 1951), pp. 501-502.

> nations, listen to complaints, and generally protect the professor from over-exposure to the ignorant.[11] [Emphasis added.]

Shortcomings of the TA System

Recently there have been so many criticisms of the use of teaching assistants that it is a little difficult to make a selection from the great mass of material available. In this section, however, some views which seem representative of a wider consensus will be presented.

The first is a report by W. Max Wise of the Danforth Foundation, whose summary view of the way universities have "abused and prostituted" the teaching assistantship has already been quoted.[12]

The general tone of Wise's comments is indicated by a section of his paper entitled "The Teaching Assistant: Intern or Serf?":

> During the past two and a half years I have visited more than thirty-five graduate schools in the United States and have had opportunities to talk informally with teaching assistants in many of these institutions. I must report that, with a handful of exceptions, the morale of these teaching assistants is low. They believe they are being exploited by their institutions in order to meet the press of expanding undergraduate enrollments. They report that they get little help from senior faculty members on the teaching problems they encounter. They seldom report that they are treated as young colleagues by members of the regular faculty; instead, more frequently they report feeling that they are treated as individuals of low status employed to do work that no one else wishes to do .... In general, teaching assistants are appointed by departments; however, little or no attention is given to the quality of the person appointed or the conditions under which he will work by the person responsible for undergraduate teaching – the dean of the college.[13]

A second recital of shortcomings, confirming and at the same time adding to the list, comes from a report by the Committee on Student Aid of the Association of Graduate Schools:

> The status of this kind of appointment [i.e., the teaching assistantship] has been declining. Although doctoral programs generally do an excellent job of preparing the candidate to do research, they are likely to leave preparation for undergraduate teaching pretty much to chance. The teaching assistantship has too often been exploited as a source of cheap labor rather than used to prepare the candidate for his professional responsibilities. In innumerable cases it has extended beyond reason the time required to complete the doctorate, or even prevented its completion altogether. Under present I.R.S. regulations virtually no teaching assistantship stipends can be deducted from gross income ... whereas

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[11] Christopher Jencks and David Riesman, "The War Between the Generations," *The Record*, Teachers College, Columbia University, Vol. 69, No. I (October, 1967), p. 5.

[12] See footnote 2.

[13] Wise, *op. cit.*, p. 90.

> most research assistantship stipends are tax exempt. For all these reasons, a teaching assistantship is less attractive than a research assistantship, and it usually pays considerably less than a Federally subsidized fellowship or traineeship. Departments are likely to assign the less able students to the teaching assistantships, the better ones to research assistantships or, of course, to Federally subsidized awards.[14]

Berelson, in his 1960 study, found that the teaching assistantship in fact had at least three shortcomings:

> (1) not all potential teachers have the experience; (2) many have it far too long; and (3) the experience is insufficiently directed and planned.[15]

These criticisms provide only a partial listing of the many shortcomings charged against the TA System. Before examining other faults and evidence of them, certain important characteristics of advanced graduate study need to be explained. First, it is apparent that most teaching assistants are themselves candidates for advanced degrees, usually doctoral degrees. Therefore, unless the main thrust and intent of doctoral training is clearly understood, it would be easy to expect graduate students to behave in certain ways not expected of regular faculty and to be puzzled by the discrepancies. In addition to this main point, it is essential to look carefully at certain other characteristic features of doctoral education, particularly the time required to complete all requirements, and the professional interests and career choices of doctoral graduates. In the following sections, these subjects are delineated in some detail.

The Purpose of Doctoral Training

The essential nature of doctoral training is indicated by a statement made during the 1920's by presidents of the Association of American Universities: "... the Ph. D. shall be open as a research degree in all fields of learning, pure and applied. ..."[16]

A more recent exposition of the subject reiterates the central point: "The crucial test of a Ph. D. program is that the training shall prepare the individual to advance our knowledge in one or more specialized fields."[17]

Finally in a statement developed by committees of the Association of Graduate Schools in the A.A.U. and the Council of Graduate Schools in the United States, and adopted in principle by both parent organizations–organizations which include nearly all doctorate-awarding institutions in the United States–are these observations:

> The Doctor of Philosophy degree ... has become the mark of highest achievement in preparation for creative scholarship and research... .

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[14] *Journal of Proceedings and Addresses of the Association of Graduate Schools in the Association of American Universities* (Austin, Texas: University of Texas Press, 1966), p. 27. These criticisms were reaffirmed and amplified in a report by the same committee a year later; see the 1967 volume, pp. 75-78.

[15] Berelson, *op. cit.*, p. 66.

[16] *Journal of Proceedings and Addresses of the Association of American Universities*, 1924, p. 27.

[17] Henry E. Bent, "The Meaning of the Ph. D. Degree: A Tribute to an Ideal," *The Journal of Higher Education*, Vol. XXXIII, No. 1 (January 1962), p. 15.

> The Ph.D. program is designed to prepare a graduate student for a lifetime of creative activity and research, often in association with a career in teaching at a university or college. . . . Undergraduate study concerns itself primarily with transmission of existing knowledge and concepts; doctoral study demands much more in that it devotes itself to developing the student's capacity to make significant contributions to knowledge.[18]

Additional examples could be cited, but hardly seem necessary. The statements quoted are representative of a viewpoint which developed in the last quarter of the 19th century, as doctoral education developed in this country, and probably reflect majority sentiment today. However, this viewpoint has had critics–from William James to the present.[19] But it seems clear that the critics have not yet won the day. Any modification of Ph. D. training, therefore, if it is to have a realistic chance of success, must take into account and, in fact, build upon the main historical tradition of such training as it has developed over the past century in America from older European precedents. The substitution of some other, radically different, purpose – e.g., the transmission of inherited knowledge – stands small chance of acceptance today.

Other degrees may be developed to serve other purposes, but the purpose of Ph. D. training remains preparation for independent research. The graduate teaching assistantship has developed within the framework of doctoral study, and important consequences flow from this historical and contemporary relationship.

The "Ph. D. Stretchout"

Few if any aspects of doctoral training have occasioned so much unfavorable comment as the lengthy time lapse between receipt of the bachelor and the doctoral degrees. Typical of the criticism is the following, from the introduction to an Association of Graduate Schools report by the Committee on Expediting the Ph. D. Degree:

> The cumulative index reproduced in the 1957 *Proceedings* of this body discloses that the deans of AGS have deliberated the problem of how to expedite graduate programs some three dozen times since 1900. A cynical observer might suggest that they have grown fond of the problem, that debating it has become a kind of annual ritual, a not very serious attempt at exorcism by incantation. Your committee refuses to accept this cynical view, in good part because they have learned by experience . . . just how grave a problem the stretchout can be. And, you will not be surprised to learn, the problem shows no disposition to go away, to solve itself.[20]

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[18] "The Doctor of Philosophy Degree" The Council of Graduate Schools in the United States (Washington, D.C.: n.d.), pp. 1, 2.

[19] James' essay, "The Ph. D. Octopus," though often cited (*cf.* his *Memories & Studies* (New York: Longmans, Green & Co., 1911), pp. 329-347) actually is not a very profound or serious attack on the central nature and purpose of Ph. D. study– certainly not when compared with the more substantial later criticism of Thorstein Veblen and Abraham Flexner. It is sometimes overlooked that James himself did not have the Ph.D.–perhaps one reason why his views were discounted.

[20] *Journal of Proceedings and Addresses of the Association of Graduate Schools in the Association of American Universities, op. cit.*, 1964, p. 61.

The concern of the deans arises, of course, from the discrepancy between formal and actual conditions – i.e., although in theory a candidate may complete a Ph. D. program in 3 years of full-time study after the baccalaureate, in fact most students actually take much longer. Just how much longer is evident from data in table 1 – data showing the median number of years between baccalaureate and doctorate degrees required by a recent group of doctoral graduates:

Table 1. Time Lapse Between Baccalaureate and Doctorate Degree: Total Time and Registered Time, Aggregate United States Doctoral Graduates, 1964-1966

	Median Years, Baccalaureate to Doctorate	
Area of Doctorate	Total Time	Registered Time
Physical Sciences and Engineering	6.3	5.1
Biological Sciences	7.3	5.3
Social Sciences	8.0	5.3
Arts and Humanities	9.5	5.7
Professional Fields	10.8	6.0
Education	13.8	6.8
All Areas	8.2	5.4

Source: Fred D. Boercker (ed.), *Doctorate Recipients From United States Universities, 1958-1966* (Washington: Office of Scientific Personnel, National Academy of Sciences, Publication No. 1489, 1967), table 14, pp. 66-68. For evidence from earlier years, see Lindsey R. Harmon and Herbert Soldz, *Doctorate Production in United States Universities, 1920-1962* (Washington: NAS-NRC Publication No. 1142, 1963), tables 20 and 21. The data given show that the mean lapsed time for all fields from 1920-1961 was 9.8 years, and the standard deviation, 5.9 years.

As the figures indicate, the total time between the two degrees varied from a low of slightly over 6 years in the "Physical Sciences and Engineering" through progressively longer periods to a high of nearly 14 years in "Education." For all fields combined, the median slightly exceeded 8 years.

"Registered time" – the time spent by students actually enrolled in graduate school to complete degree requirements – is of course much shorter and, though the differences between fields are less, the general order of differences is the same. This fact confirms Barelson's finding nearly 10 years ago: If only "full-time-equivalent" study is considered, the differences between fields are negligible.[21] But if this is so, what causes the long lapsed time, or the "Ph. D. stretchout"?

The most definitive analysis of the duration of doctoral study is Kenneth Wilson's report on the doctoral graduates of 23 southern universities during the years 1950 to 1958. In this survey students were asked to rate the importance of 15 listed factors contributing to the length of time required to complete degree requirements. The five most important ones, each cited by more than a quarter of the respondents, were, in descending order:

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[21] Berelson, *op. cit.*, pp. 156–160. In terms of full-time-equivalent study, Berelson found that students in education and professional fields required *less* time than those in academic fields.

> . . . discontinuity of graduate attendance, work as a teaching assistant, nature of the dissertation subject, writing the dissertation off-campus while engaged in full-time employment, and financial problems.[22]

Noteworthy is the fact that "work as a research assistant" was far down on the list, in 13th place.[23] The author's conclusion was:

> The data point up a clear distinction between work as a teaching assistant and work as a research assistant in respect to judged influence on time taken to attain the degree. Research appointments were infrequently evaluated as contributing to "length," whereas teaching assistantships were frequently judged to have had a lengthening influence.[24]

Although Wilson's study was restricted to one geographical region, the conditions of graduate student financial support and employment are similar in all sections of the Nation. There is no reason for thinking that his findings would not be equally true of graduate study in every other region of the country. The evidence points clearly to the fact that the teaching assistantship is one of the major contributing causes to the "Ph. D. stretchout" so widely deplored by critics of existing doctoral programs.

The Motivation of Doctoral Students: Career Interest and Decisions

An earlier section of this chapter made it clear that the purpose of Ph. D. training, as seen by faculty and administrators, was defined as training for independent research. But how well does this goal fit the desires and expectations of students who enroll in such programs?

In the past, one of the often-repeated criticisms of doctoral training has been that it does not prepare students well for what most of them will actually do when they have earned their degrees, i.e., undergraduate teaching. Berelson labels this criticism the "market-research", argument, which he paraphrases as follows: "Most doctorates go into college teaching and few make real contributions to research, so the graduate school should organize its training accordingly. . . "[25]

In reviewing the evidence for this argument, Berelson made several telling points. First, he found that from 1900 to 1958 the proportion of doctoral graduates employed in higher education appeared to be slowly declining—from more than 70 percent in 1900 to 60 percent in 1958. Second, although the number of doctoral graduates entering higher education in 1958 was somewhat greater than the number entering other professions, it was not overwhelmingly so.[26] But, as Berelson observed, the situation is more complex than these data reveal. The argument for more emphasis on "college teaching" in doctoral training can mean (1) employment in higher education, (2) undergraduate teaching in junior colleges or elsewhere, or (3) undergraduate teaching in a liberal arts college. The employment percentages Berelson cited actually refer to (1) "employment in higher education," but the argument for more emphasis on the training of teachers has to do with (2), "undergraduate teaching in a liberal arts college." However, Berelson's own data showed that only 20 percent of the doctoral recipients surveyed were teaching undergraduates in liberal arts colleges. The 60 percent employment figure was, therefore not as convincing as proponents of "college teaching" imagined; consequently, Berelson concluded that the market-research argument did *not* justify changing the emphasis in doctoral work from research to teaching.[27]

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[22] Kenneth W. Wilson, *Of Time and the Doctorate: Report of an Inquiry into the Duration of Doctoral Study* (Atlanta: Southern Regional Education Board, 1965), pp. 47-48.

[23] *Ibid.*, pp. 46-59, and especially table 3.2, p. 47.

[24] *Ibid.*, p. 48

[25] Berelson, *op. cit.*, p. 48.

[26] *Ibid.*, pp. 50-51.

More recent data than that from Berelson–data from the Doctorate Records File of the National Academy of Sciences-National Research Council–show the postdoctoral employment of graduates between 1958 and 1966, by 3-year periods (see table 2).

The figures for "All Areas" show that the number of doctoral graduates accepting college or university employment increased from 58 percent in 1958-60 to 59 percent in 1961-63 to 61 percent in 1964-66. Though the change is small, it is consistent and sustained. Further, each of the major academic areas reflects the same trend, although the large increases are in the "Social Sciences" (five percentage points) and the "Physical Sciences and Engineering" (nine points.) The latter seems particulary important, because higher education has previously attracted relatively fewer graduates in these fields.

What is the significance of the recent changes? First, whatever the reasons may be, it seems clear that in the past 9 years the competitive position of higher education for doctoral graduates has improved vis-a-vis alternative types of employment. Thus, the long-term decline in the attractiveness of higher education, which Berelson noted, seems to have been reversed, at least temporarily. Second, the data cited do not disclose whether increasing numbers of graduates are going into undergraduate liberal arts teaching, and in the absence of evidence suggesting that they are, one suspects that they are not. So the market-research argument remains unconvincing. Finally, the data in table 2 show only percentages, not absolute numbers, and the number of doctoral degrees conferred in recent years has increased rapidly.[28] It is possible, then, that the needs of government, industry, etc., have been adequately met by declining percentages of larger absolute numbers.

Some further light on the career aspirations of graduate students was shed by the Office of Education in a 1965 survey. Students were asked, among other things, to state their expected first and long-term employers. Table 3 contains replies concerning first-time employers; and, in the column "4-Year College or University," both anticipated first and long-term employers.

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[27] Berelson, *op. cit.*, pp. 54-56.

[28] The number of degrees conferred in recent years is as follows: 1965-66: 18,239; 1966-67: 20,621; 1967-68: 23,091. Source: The Office of Education's annual *Earned Degrees* survey.

Table 2: Postdoctoral Employment of U.S. Doctoral Graduates of 1958-1966, by Academic Areas

Area	Years of Doctorate	Percent Accepting Employment With: College or University	Government	Industry
All Areas	1958-60	58	8	16
	1961-63	59	8	13
	1964-66	61	7	12
Physical Sciences and Engineering	1958-60	39	6	44
	1961-63	45	6	34
	1964-66	48	6	30
Biological Sciences	1958-60	58	13	10
	1961-63	58	12	8
	1964-66	59	11	7
Social Sciences	1958-60	59	17	5
	1961-63	58	15	4
	1964-66	64	12	4
Arts and Humanities	1958-60	87	2	1
	1961-63	87	1	1
	1964-66	89	1	1
Professional Fields	1958-60	60	5	1
	1961-63	60	5	1
	1964-66	61	5	1

SOURCE: *Doctorate Recipients From United States Universities* (Washington, D.C.: National Academy of Sciences, Publication 1489, 1967), Adapted from table 18, pp. 82-84. The percentages for other employment categories—"Professional Services," "Fellowships," and "Other"—have been omitted.

Table 3: Anticipated Employers of Doctoral Students, Spring 1965, by Major Areas

Academic Areas	Percent of Students Anticipating Employment With:					
	Junior College	4-Year College or University		Other		
		First	Long-Term	Research Organization	Federal Government	Private Company
All Doctoral Students	3	54	63	13	4	10
Education	7	39	51	3	1	1
Humanities						
English and Journalism	4	88	94	1	3	1
Fine and Applied Arts	7	75	85	2	1	4
Foreign Languages	3	83	88	3	1	1
Philosophy	1	94	94	1	1	1
Social Sciences						
Psychology	1	46	53	11	2	4
History	6	82	88	2	2	2
Social Work, Social Administration	–	27	42	–	–	–
All Other Social Sciences	2	70	76	6	4	5
Professional Fields						
Business and Commerce	3	82	74	–	–	12
Health Professions	1	46	50	16	6	14
Library Science	–	67	75	6	–	–
Religion	–	63	70	1	–	1
Sciences						
Biological	1	59	61	25	2	5
Physical	2	42	56	25	7	23
Mathematics and Statistics	2	66	76	11	4	11
Agriculture and Forestry	–	49	50	28	8	9
Engineering	1	29	46	31	8	31

Source: *Survey of the Academic and Financial Status of Graduate Students, Spring 1965,* U.S. Office of Education, table No. 13, p. 13, and table 14, p. 17 (unpublished data). Figures for such categories as elementary and secondary schools, hospitals, clinics, etc., have been omitted.

The figures show that 54 percent of all doctoral students anticipated first-time employment with a 4-year institution; another 3 percent, with a junior college. Further, 63 percent expected that the long-term employer would be a 4-year institution. So the trend toward employment in higher education appears to be accelerating beyond the 61 percent shown in table 2 (based on actual employment choices).

A comparison of the figures for first and long-term employers is instructive, for, with the exception of only two fields, the percentages are higher for long-term employment with colleges and universities than for firsttime. The exceptions are "Business and Commerce," which seem understandable, and "Philosophy," a field in which 94 percent – about as high a percentage as possible – anticipate both first and long-term employment will be in higher education. In only two fields – "Social Work" and "Engineering" – did fewer than half the students indicate a preference for long-term employment in an area other than higher education.

These data on student career interests, both comprehensive and recent, provide additional confirmative evidence of postdoctoral employment trends cited earlier. They show the strong attraction on the part of doctoral students in most fields (three *professional fields* are the only exceptions) to long-term careers in higher education. The relevance of doctoral training as a preparation for achieving this goal is, therefore, a matter of prime importance, and a matter pertinent both to the general structure and nature of doctoral training and to the adequacy of individual programs of study. It is a question bound to be raised by each new generation of students, since each has its own distinguishing characteristics, background, and interests. And within the general framework of doctoral study, the relevance of the teaching assistantship to this same goal must also be established.

Summary

In this chapter the growth of the TA system has been viewed within the evolving framework of doctoral study in American universities. A number of major influences can be distinguished. First, although historical data are sketchy, it appears that the graduate teaching assistantship became an accepted institution primarily because of the financial needs of students. Other means of support were simply nonexistent, at least for the majority, so the graduate TA provided one major stimulus for the early growth of graduate enrollments.

In the years immediately following World War II, when institutions did not have a sufficient number of regular faculty to cope with enormous enrollment increases, an additional factor came into play. Institutions appointed large numbers of surrogate faculty, in the form of graduate teaching assistants, and relegated to them many of the routine instructional chores for which regular faculty had little interest and for which they were really not essential. And, of course, the apppointment of the TA's coincided with and made possible further growth in graduate student enrollments.

A third major influence was the initiation by the Federal Government in 1958 (after Sputnik) of major programs for the advanced training of scarce specialized manpower. In the fields of perceived national shortages, massive funds were made available in the form of research assistantships, fellowships, and traineeships. The terms of these awards were, in most cases, so attractive that the well-established teaching assistantship came to be regarded as a second- or third-rate appointment. The inevitable result was that problems of morale developed among TA's – problems which commanded the attention of departmental chairmen, deans, and other administrative officers.

A fourth major influence came to public attention in a dramatic way in 1964 when student demonstrations erupted on the Berkeley campus of the University of California. This is the increasing dissatisfaction by students, parents, alumni, and other influential groups with the quality of undergraduate (particularly lower division) instruction. And of course the graduate teaching assistant has borne the brunt of much student criticism. It seems likely that this source of dissatisfaction will continue to grow until such time as measures are taken to remedy the ills complained of.

In addition to the foregoing influences, some of the other characteristics of doctoral study and of doctoral students have been examined. These include the long time lapse between baccalaureate and doctorate degrees (with the teaching assistantship contributing in a major way to the delays) and the strong continuing interest of doctoral students in careers in higher education, as indicated both by their stated preferences and by their postdoctoral employment.

In chapter 2, the universe of teaching assistantships is defined more sharply, on the basis of existing statistical evidence.

CHAPTER II STATISTICAL DIMENSIONS OF THE TA UNIVERSE

Relationship of Teaching Assistants to Enrollments and Faculty

This section contains information pertaining to trends in the growth of teaching assistants and related trends in student enrollment and the number of faculty employed.

Table 4 shows data concerning these several categories for the years 1953 and 1965. On the left side are figures for degree-credit enrollment and, on the right, figures for instructional staff. The reader's attention is invited particulary to the percentages in the bottom row. Although graduate enrollment more than doubled over the 12-year period (110 percent), it was exceeded by the 155-percent increase in first-time enrollment. Similarly, although regular staff of the rank of instructor and above increased by 103 percent, junior instructional staff – by and large, graduate teaching assistants – increased by 145 percent. From these differential growth rates, it can be seen that the increased instructional responsibilities of universities have been made possible by the appointment of large numbers of junior instructional staff, or graduate teaching assistants.

If a further perusal of table 4 should prompt the question, "Where are the statistics for graduate TA's?" The answer is that, if the statistics are reliable, they are included on both sides of the table – in the graduate student enrollment, on the left side, and in the junior instructional staff, on the right. There is, however, an important qualification to this statement. The instructions for the faculty survey stated that, with respect to junior instructional staff, institutions were to "count assistant instructors, teaching fellows, teaching assistants, and laboratory assistants only if their functions included instruction of students."[1] Thus, many graduate students appointed as TA's by institutions would not be included – those in English, for example, whose sole function is the grading of exams, or those in the sciences, whose work consists of tending greenhouses or animal laboratories, or simply assisting with lab experiments. It follows, then, that the figures on junior instructional staff, large as they are, undoubtedly understate the true growth.

Distribution of TA's by Type of Institution

The purpose of this section is to answer the question, "How are the TA's distributed among the various types of higher educational institutions?"

Table 5 shows the numerical and percentage distribution of TA's in 1959 and 1963, by type of institution, and, for purposes of comparison, the percentage distribution of regular faculty in 1963.

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[1] See *Faculty and Other Professional Staff in Institutions of Higher Education, Fall Term, 1963-64.* Department of Health, Education, and Welfare, OE-53000-64, Circular No. 794, 1966, p. 99, par. 3B (Washington, D.C.: Government Printing Office).

Table 4: Enrollment and Faculty in Higher Education, 1953 and 1965[a]

Year	Enrollment in Higher Education			Instructional Staff in Higher Education		
	Total Resident & Degree-Credit Enrollments	First-Time Degree-Credit Enrollment	Graduate Degree Credit Enrollment	Total Staff	Instructor and Above	Junior Instructional Staff
1	2	3	4	5	6	7
1965	5,526,325[c]	1,441,822[c]	582,000[d]	432,000[d]	368,588[d]	65,000[d]
1953	1,514,712	565,969[f]	276,999[e]	208,547[g]	182,928[g]	26,519[g]
Numerical Increase	3,011,613	875,853	305,001	223,453	186,560	38,481
Percent Increase	119.8	154.8	110.1	107.2	102.5	145.1

[a] All data are for the 50 States and the District of Columbia.

[b] "Instructional Staff" excludes staff employed for general administration, libraries, organized research, extension, and noncredit work. Source: 1963 data are from *Faculty and Other Professional Staff in Institutions of Higher Education, Full Term, 1963-64,* Department of Health, Education, and Welfare, OE-52000-64, 1966, table 13, p. 18 (Washington, D.C.: Government Printing Office, 1966). For 1965 data, see footnote d, below.

[c] *Digest of Educational Statistics: 1966,* Department of Health, Education, and Welfare, OE-10024-66, tables 77 and 80 (Washington, D.C.: Government Printing Office, 1966).

[d] *Projections of Educational Statistics to 1975-76.* Department of Health, Education, and Welfare, OE-10030-66, tables 11 and 27 (Washington, D.C.: Government Printing Office, 1966).

[e] *Digest, op. cit.,* table 82.

[f] *Ibid.,* table 80.

[g] *Ibid.,* table 92.

Table 5: Distribution of Junior Instructional Staff, by Type of Institution, 1959 and 1963, and of Faculty for Resident, Degree-Credit Instruction, 1963

Item	Junior Instructional Staff				Faculty for Resident Degree-Credit Courses, Instructor or Above, 1963	
	1959		1963			
	Number	Percent	Number	Percent	Number	Percent
Total, 4-Year Institutions	38,441	100.0	52,543	100.0	273,387	100.0
Universities	31,900	83.0	44,596	84.9	144,227	52.8
Liberal Arts Colleges	2,693	7.0	3,715	7.1	78,488	28.7
Teachers Colleges	731	1.9	659	1.2	20,778	7.6
Technological Schools	1,383	3.6	2,704	5.1	11,416	4.2
Theological and Religious Schools	290	.8	161	.3	4,185	1.5
Schools of Art	85	.2	79	.2	2,534	.9
Other Professional Schools	1,359	3.5	629	1.2	11,759	4.3
Less than 4-Year Institutions	178	–	151	–	32,072	–

Sources: *Faculty and Other Professional Staff, 1959-60, op. cit.*, table 10, p. 11, and *Faculty and Other Professional Staff, 1963-64, op. cit.*, table 8, p. 10.

Inspection of the figures reveals that in 1959 universities employed 83 percent of all TA's and, in 1963, nearly 85 percent. This is much larger than their 53 percent of regular faculty.

Of the other 4-year institutions, liberal arts colleges employed 7 percent of TA's, and technological schools, 5 percent. Other types of institutions employed under 2 percent each.

Thus, in 1959, the universities, liberal arts colleges, and technological schools together employed 94 percent of the TA's, and in 1963 each type increased its share of the total for a combined 97 percent. In these three types of institutions regular faculty constituted 86 percent of the total in 1963. Thus, the TA's are more highly concentrated than regular faculty.[2]

Concentration of TA's In Large Institutions

The previous section established the fact that an overwhelming majority of TA's is concentrated in universities, with a relatively minor proportion in liberal arts colleges and technological schools. Data presented in this section show that, within the category of universities, there is a high concentration in the very large institutions.

A further breakdown of the data on instructional staff at all institutions and at large public and private institutions in 1959 and 1963 is shown in table 6. The term "large," as used in this table, means those institutions each of which reported employing 100 or more junior instructional staff.

Section I of the table shows junior instructional staff at all institutions. From 1959 to 1963, the number of such institutions rather surprisingly declined from 761 to 604, but because of the increase in total number of such staff, the average number per institution increased from 51 to 87. Junior staff as a percent of regular faculty increased moderately, from 15.8 to 17.3 percent.[3]

Section II gives comparable data for all "large" institutions. Their share of all junior instructional staff increased sharply in this short period – from 81 to 87 percent. Furthermore, while junior staff comprised only 17 percent of full-time faculty in all institutions, the number in the large schools rose from 53 to 60 percent. Evidently the bulk of the TA problem is in these large institutions, which numbered 88 in 1959 and 114 in 1963.

At the large private institutions, examined in section III of the table, the number of junior staff increased moderately–as did the number of institutions

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[2] Additional data on junior instructional staff and regular faculty, from 1953 through 1965, at 2-year intervals, are given in appendix A, table A-1. Table A-2 in appendix A contains data on the number and percent of junior instructional staff at public and private institutions, at 2-year intervals, from 1955 through 1963.

[3] To show junior instructional staff as a percent of regular faculty may be somewhat misleading, since the former are generally part-time staff. Furthermore, the full-time equivalent of such staff can only be surmised. There are other ways of estimating the contribution of junior staff, and some of these are presented in chapter 3. A recent publication, for example, suggests that "in many universities between 15 and 30 percent of all student contacts for instructional purposes are with a graduate student." Vincent Nowlis, Kenneth E. Clark, and Miriam Rock, *The Graduate Student As Teacher* (Washington, D.C.: American Council on Education, 1968), p. 34. There are reasons for believing that this measure also underestimates the role of graduate teaching assistants.

Table 6: Junior Instructional Staff and Full-Time Faculty, Instructor or Above, at All U. S. Institutions and at Large Private and Public Institutions, 1959 and 1963

Item	1959	1963
I. Junior Instructional Staff (Jr.S.) and Faculty at All U. S. Institutions		
1. Total U. S.	38,619	52,694
2. Institutions reporting Jr.S.	761	604
3. Average number of Jr.S. per institution	51	87
4. Full-time faculty, instructor or above[b]	244,461	305,459
5. Jr.S. as a percent of full-time faculty	15.8	17.3
II. Instructional Staff at Large Institutions (employing 100 or more Jr.S.		
1. Total Jr.S.	31,146	46,011
2. As a percent of U. S. total	80.7	87.3
3. Number of large institutions	88	114
4. Average number of Jr.S. per institution	354	404
5. Full-time faculty, instructor or above	59,220	76,640
6. Jr.S. as a percent of full-time faculty	52.6	60.0
III. Instructional Staff at Large Private Institutions (100 or more Jr.S.)		
1. Total Jr.S.	13,004	16,154
2. As a percent of U. S. total	33.7	30.7
3. Number of large private institutions	41	47
4. Average number of Jr.S. per institution	317	344
5. Full-time faculty, instructor or above	22,476	29,876
6. Jr.S. as a percent of full-time faculty	57.9	54.1
IV. Instructional Staff at Large Public Institutions (100 or more Jr.S.)		
1. Total Jr.S.	18,142	29,857
2. Percent of U. S. total	47.0	56.7
3. Number of large public institutions	47	67
4. Average number of Jr.S. per institution	386	446
5. Full-time faculty, instructor or above	36,744	46,764
6. Jr.S. as a percent of full-time faculty	49.4	63.9

Source: Two reports, *Faculty and Other Professional Staff in Institutions of Higher Education, First Term, 1969-60,* and *1963-64, op. cit.* The above figures have been hand-tabulated from these sources.

[a] Excluding U. S. Service Schools.

[b] "Full-time faculty" is defined more fully as "faculty for resident instruction in degree-credit courses," and excludes staff for general administration, libraries, organized research, extension, etc.

and the average per institution—but at a rate so much lower than at other institutions that the private share of the national total declined from 34 to 31 percent. Within the total instructional staff, the share of the junior staff also declined, from 58 to 54 percent. Since the average number per institution, however, was very close to the average for all large institutions, one must conclude that TA problems are similar at most large institutions, public or private.

Section IV of the table summarizes the situation at large public institutions: During the years in question, the junior staff increased from about 18,000 to nearly 30,000, and from 47 to 58 percent of the U.S. total. The number of institutions reporting 100 or more junior staff increased from 47 to 67, and the average number per institution was 100 more than at the private institutions. Finally, junior staff as a percent of regular faculty increased from about 50 to 64 percent.

Graduate Enrollments and Doctoral Degrees Conferred At Large Institutions, 1959 and 1963

Graduate teaching assistants are, of course, students as well as teachers, consumers as well as producers of education. And as consumers they are candidates for advanced, usually doctoral degrees. To understand their situation, therefore, it is important to elucidate the relationship of TA's to graduate enrollments and doctor's degrees, particularly in those large institutions where a majority of both are concentrated.

Section I of table 7 presents figures on graduate enrollments and doctor's degrees conferred at all U.S. institutions; also, at the same large institutions cited in table 6 (i.e., those employing 100 or more junior instructional staff). According to the data, it appears that the large institutions, over the period shown, increased their share of graduate enrollments from 59 to 62 percent, and the number of doctor's degrees awarded from 88 to over 90 percent.

The reverse was true in large private institutions—as indicated in section II of table 7. Their share of graduate enrollments slipped from 27 to 26 percent, and doctor's degrees declined from 41 to 38 percent. This trend, of course, parallels a similar decline in their share of junior staff employed, as shown in table 6.

In section III the growth patterns in large public institutions are plain. Their share of graduate enrollments increased from 31 to 36 percent, and their share of doctor's degrees from 48 to 52 percent. This growth parallels that in junior instructional staff, as shown in table 6. Quite clearly, over the period indicated, the large public institutions have simultaneously increased their share of graduate enrollments, of junior instructional staff, and of doctoral degrees conferred. And quite clearly, also, in view of the nature of the subject—or, more properly, the *dual* nature of the subject—such a pattern was inevitable, since "graduate enrollments," "doctoral graduates," and "junior instructional staff" are different names for, or different aspects of, the same individuals.

Trends in Graduate Enrollment and Financial Support, 1954 and 1965

In one respect, at least, advanced study today is no different than it was fifty or a hundred years ago: Most enrolled graduate students require financial

Table 7: Graduate Enrollment and Doctor's Degrees Conferred at all Institutions and at Large Private and Large Public Institutions, 1956 and 1963

Item		1959	1961
I. All Institutions			
1.	Total U. S. graduate enrollment	304,831	413,366
2.	Enrollment at large institutions	178,442	254,620
3.	Percent at large institutions	58.5	61.6
4.	Total U. S. doctor's degrees	9,360	14,490
5.	Degrees conferred by large institutions	8,270	13,070
6.	Percent at large institutions	88.4	90.2
7.	Number of large institutions	88	114
II. Large Private Institutions			
1.	Graduate enrollment	83,607	107,454
2.	Percent of U. S. total	27.4	26.0
3.	Doctor's degrees conferred	3,805	5,530
4.	Percent of U. S. total	40.7	38.2
5.	Number of institutions	41	47
III. Large Public Institutions			
1.	Graduate enrollment	94,835	147,166
2.	Percent of U. S. total	31.1	35.7
3.	Doctor's degrees conferred	4,465	7,540
4.	Percent of U. S. total	47.7	52.0
5.	Number of institutions	47	67

Sources: Graduate enrollment figures are from the reports *Enrollment for Advanced Degrees, 1959,* OE-54019, and *1963,* OE-54019-63 (Washington, D.C.: Government Printing Office, Department of Health, Education, and Welfare, 1961 and 1965). Doctor's degree figures are from the reports *Earned Degrees Conferred, 1958-59,* OE-54013, and *1962-63* OE-54013 (Washington, D.C.: Government Printing Office, Department of Health, Education, and Welfare, 1961 and 1965.) Figures for large institutions have been hand-tabulated.

support of some kind. Furthermore, the amount and kind of support have very different consequences, since some kinds of support impose conditions which considerably delay a student's completion of work, while others do not. In this and the following sections, trends in the growth of financial aid for graduate study will be examined; also the distribution of the principal forms of support among the major academic areas.

Table 8 contains figures on graduate enrollments and graduate student stipends, by major academic areas, for 1954 and 1965. Careful examination reveals a number of important points. One of these is that, although enrollments have nearly tripled, stipends have increased by over 5 times, so that stipends in relation to enrollments have increased from 22 to 40 percent, and the proportion of students receiving support from stipends has nearly doubled.

With respect to the major academic areas shown, in 1954 "Education" had the lowest ratio of stipends to enrollments, and, despite a five-fold increase, was still lowest in 1965.

In the "Humanities," the number of stipends increased over 5 times, and the number of students supported rose from 27 to 44 percent. The ratio of "Humanities" students supported in 1965 almost reached the ratio attained by "Natural Sciences" students 11 years earlier.

In the "Natural Sciences," the relative increases were not as great as in some other areas. However, the ratio of stipends to enrollments in "Natural Sciences" was the highest (45 percent) of all areas in 1954, and remained highest (over two-thirds) in 1965.

The "Professional Fields" had the second lowest share of support in 1954, and, despite impressive gains, were still second lowest in 1965.

Finally, whereas in 1954 only about one-quarter of "Social Sciences" students received stipends, by 1965 the proportion had increased to over one-half. In 1965 they were second to the "Natural Sciences" in the ratio of students supported.

The differences cited are not new to anyone familiar with problems of graduate-student financial support. They do, however, illustrate some of the difficulties of trying to generalize about the adequacy of financial support for graduate study, and of achieving equity among students whose principal difference is the field or discipline in which they are enrolled. Additional differences in the types of support available are examined in the following section.

Number and Distribution of Graduate Student Stipends, by Type and Academic Areas, 1954 and 1965

Table 9 depicts a breakdown of the total stipend figures in table 8, by type of stipend. The three major categories are teaching assistantships, research assistantships (RA's), and (nonduty) followships.[4]

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[4] A fourth category of support, not shown in table 9, is that of tuition waivers. Although figures for these are available, they are judged to be less reliable than those for other stipends. They are probably less significant than the other forms, too, since they are often combined with one of the other types.

Table 8: Graduate Enrollments in Relation to Stipends, by Major Academic Areas, 1954 and 1965

Areas	Graduate Enrollment	Number of Stipends	Stipends as a Percent of Enrollment
Education			
1954	59,917	1,841	3
1965	133,476	19,328	14
Percent Increase	123	950	—
Humanities			
1954	15,709	4,216	27
1965	53,229	23,572	44
Percent Increase	239	460	—
Natural Sciences			
1954	50,864	22,770	45
1965	135,886	91,846	68
Percent Increase	167	303	—
Professional Fields			
1954	22,504	2,843	13
1965	65,904	15,641	24
Percent Increase	193	450	—
Social Sciences			
1954	22,563	5,336	24
1965	73,538	38,691	53
Percent Increase	226	625	—
Total			
1954	171,557	37,036	22
1965	477,535	189,078	40
Percent Increase	178	410	—

Sources: The 1954 figures are from the National Science Foundation report *Graduate Student Enrollment and Support in American Universities and Colleges, 1954* (Washington, D.C.: Government Printing Office, NSF 57-17, 1957). The 1965 figures are from an Office of Education Survey in 1965, the highlights of which are reported in *The Academic and Financial Status of Graduate Students, 1965,* by J. Scott Hunter Department of Health, Education, and Welfare, OE-54042 (Washington, D.C.: Government Printing Office, 1967). The latter was based on a sample of students, selected to represent graduate enrollments in the fall of 1964. The numbers are therefore not precise, and the percentages have been rounded to the nearest whole number.

Table 9: Number and Percent of Stipends, by Type and by Academic Areas, 1954 and 1965[a]

Areas	All Stipends		Teaching Assistantships		Research Assistantships		Fellowships	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Education								
1954	1,841	100.0	1,043	56.6	296	16.1	502	27.3
1965	19,328	100.0	6,872	35.6	3,500	18.1	8,956	46.3
Humanities						11		
1954	4,216	100.0	3,053	72.4	193	4.6	970	23.0
1965	23,572	100.0	12,764	54.1	1,649	7.0	9,159	38.9
Natural Sciences								
1954	22,770	100.0	9,107	40.0	9,558	42.0	4,105	18.0
1965	91,846	100.0	23,396	32.0	31,115	33.9	31,335	34.1
Professional Fields								
1954	2,843	100.0	813	28.6	403	14.2	1,627	57.0
1965	15,641	100.0	3,744	23.9	3,791	24.3	8,106	51.8
Social Sciences								
1954	5,336	100.0	2,507	46.7	1,410	26.3	1,449	27.0
1965	38,691	100.0	10,636	27.5	8,988	23.2	19,067	49.3
Total								
1954	37,036	100.0	16,523	44.6	11,860	32.0	8,653	23.4
1965	189,128	100.0	63,412	33.5	49,093	26.0	76,623	40.5
Percent Increase	410.7	–	283.8	–	313.9	–	785.5	–

[a] Figures for 1965 do *not* include scholarships, since these were not included in the 1954 report. For sources, see footnotes to table 8, *supra.*

The large increase in the total number of stipends has already been noted in table 8. Within this total, the greatest growth – over 8 times – has been in fellowships, i.e., nonduty stipends; research assistantships, which increased by a factor of more than four were next; and TA's, with an increase of "only" 284 percent, were last.

One consequence of these differential growth rates has been a substantial realinement of the share of support provided by each major type. In 1954 TA's accounted for the most frequent type of support, 45 percent of the total; RA's provided for a third, and fellowships for the remainder. By 1965, however, these relationships had markedly changed: TA's provided for one-third of the total, RA's for a little over a quarter, and fellowships had taken over the lead, with 40 percent – a far different support pattern than that prevailing a decade earlier.

Figures for the major academic areas show, however, that the averages for all fields conceal great variations in individual areas.

In "Education," for example, half of all support in 1954 came from TA's, about a quarter from fellowships, and one-sixth from RA's. Eleven years later, fellowships provided nearly half of all support, TA's over a third, and RA's between a fifth and a sixth. When compared with the proportion for all areas combined, the availability of RA's in "Education" seems low.

In the "Humanities," the 1954 pattern of support was very uneven: nearly three-fourths of all support was from TA's, the highest proportion of any area, both in 1954 and in 1965; and the number of RA's in the total – 5 percent in 1954 and 7 percent in 1965 – was in sharp contrast to most other fields. This combination of characteristics – a heavy dependency on TA's and a great paucity of RA's – marks the "Humanities" as unique.

The "Natural Sciences," as noted before, have long been the most generously supported of the major academic areas. In 1954, TA's and RA's each provided for about 40 percent of the total, the remaining 18 percent coming from fellowships. By 1965, the latter category had increaased so much that each major type of support provided for about one-third of the total. This more even distribution, as well as the high proportion of students supported, distinguishes the "Natural Sciences" from the other areas.

In the "Professional Fields," the principal change over the 11-year period has been in the relatively greater share of support provided by RA's in 1965, compared with that prevailing in 1954.

The 1954 pattern of stipends in the "Social Sciences" shows 47 percent for TA's and a little over a quarter each for RA's and fellowships. By 1965, fellowships accounted for nearly half the total, with TA's amounting to 28 percent, and RA's, 23 percent.[5]

Work Performed by Graduate Assistants

As a result of a survey of graduate students made by the U.S. Office of Education in 1965, considerable information was obtained about the kinds of

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[5] Table 3-A in appendix A contains a finer field breakdown of stipends, as reported in the 1965 Office of Education survey.

Table 10: Number of Graduate Student Assistants Performing Specified Duties, Spring of 1965[a]

Fields	Duties Performed								
	Teaching	Research	Grading Papers	Constructing Exams	Professional Services	Clerical Duties	Other	Administration	Resident Counseling
All Fields	**62,408**	**60,087**	**46,126**	**27,383**	**12,196**	**11,057**	**10,352**	**3,948**	**3,429**
Physical Sciences	11,180	12,935	7,995	3,185	845	520	1,105	65	195
Biological Sciences	7,550	8,732	5,072	3,343	1,210	345	1,210	86	86
Education	7,020	4,682	3,084	2,259	1,600	2,426	1,600	1,021	909
English	4,912	916	3,995	2,521	360	884	589	196	229
All Other Social Sciences	4,908	6,317	4,229	3,289	887	1,670	780	574	365
Mathematics and Statistics	4,821	1,499	3,345	2,399	415	138	322	92	115
Engineering	4,141	9,053	3,852	1,444	1,155	96	770	192	385
Foreign Languages	3,869	804	2,671	2,174	273	599	510	136	222
Fine & Applied Arts	2,877	700	1,326	775	1,101	825	700	450	100
History	2,472	1,215	2,514	1,571	167	607	440	146	125
Psychology	2,423	3,929	2,248	1,331	851	1,135	567	196	218
Business and Commerce	1,727	1,997	2,429	1,025	593	863	377	377	215
Miscellaneous	1,143	1,033	908	626	234	328	203	156	62
Agriculture and Forestry	936	3,619	759	394	325	147	384	59	39
Philosophy	832	270	753	497	35	85	156	14	49
Health Professions	816	1,961	462	243	535	36	304	48	12
Religion	584	100	302	201	141	60	100	60	40
Library Science	148	87	122	70	280	271	52	43	17
Social Work	37	225	50	25	1,291	12	200	25	37
Percent of Total	**26**	**25**	**20**	**12**	**5**	**5**	**4**	**2**	**1**

[a] Source: U. S. Office of Education Survey, 1965, *op. cit.*

duties performed by graduate assistants, and a summary of some of these findings is presented in table 10. The kinds of duties are listed from left to right, in descending order according to the number of students engaged in each. Thus, the bottom row shows that 26 percent of the students were involved in classroom teaching, 25 percent in research, 20 percent in grading papers, and 12 percent in preparing examinations. These four categories accounted for 83 percent of all assistants; no other category involved more than 5 percent. However, in particular fields some of the other duties were important. For example, in "Education," in comparison with other fields, a sizable number of students were engaged in professional services, clerical duties, administration, resident counseling, and "other."

How much time did the students (table 10) spend on their assigned duties? Fortunately, this question was asked in the Office of Education 1965 survey, and a short summary of the answers is presented in table 11.

Table 11. Hours Per Week Worked by Graduate Assistants

Hours Per Week	Number of Stipend Holders	Percent of Total
Under 10	13,565	12.9
10 to 14	16,146	15.4
15 to 19	14,272	13.6
20 to 24	34,819	33.2
25 to 29	3,744	3.6
30 to 34	4,562	4.4
35 to 39	2,139	2.1
40 and over	15,515	14.8
Total	104,792	100.0

Source: U. S. Office of Education Survey, 1965, *op. cit.*

These statistics reveal that the modal range of hours worked is 20 to 24 – an indication that most assistantships are probably regarded as half-time jobs. How these hours are computed, especially for those who teach, is impossible to say. One would hope, however, that hours spent in preparation for a class would be included, as well as time for grading exams, advising students, and so on.

The wide range of duties (table 10), as well as the hours required to perform them (table 11) raise a number of questions. One would like to know, for example, how many of the duties contribute either to a student's progress in his own studies or to his professional preparation as a future college teacher. Presumably classroom teaching would fall in the latter category, and research–at least in an area of one's own choosing–in the former. However, the value of these activities would surely depend to a considerable degree on the amount of supervision and feedback involved; also, on the duration of the assignment. One's first teaching assignment, for example, usually involves a good deal of learning, whereas teaching the same section of the same elementary course year after year usually does not.

Another question concerns data in table 10. It has already been noted that one-third of the assistants worked 20 to 24 hours per week; 42 percent, less than 20 hours per week; and nearly a quarter, more than 24 hours, including almost 15 percent who logged 40 or more hours per week. The high number of hours appears to be a heavy burden for full-time students, unless, as is possible, the students were engaged in research for their dissertations. If they were not – if they were, in fact, spending a large amount of time on duties connected with teaching – then it is easy to understand why holding a teaching assistantship has been, for many, a major delaying factor in completing requirements for the Ph. D. But again, as with several similar matters, this determination is merely speculative.[6]

Differing Perspectives Regarding the TA's Role

In earlier sections of this chapter, statistical evidence concerning recent trends and relationships in the TA universe has been presented. Some of these relationships are quite complex, and as the number of TA's increases (as undoubtedly it will), the complexities will also increase. A better understanding of these complexities can be obtained if the TA's role and performance are considered from different perspectives. The purpose of this section is to examine several of these.

A recent report, based on extensive studies and conferences at the University of Rochester, documents the nature of three perspectives regarding the TA's role–the view of undergraduates, that of the graduate TA's themselves, and that of departmental chairmen.[7] The undergraduate view, because it combines quite favorable comments on some aspects of TA performance with critical observations on other points, is difficult to characterize. In general, however, undergraduates feel that TA's manifest greater variations–both good and bad–than do regular faculty. They cited shortcomings of TA performance in some detail. In the words of the report:

> Criticism arises when the graduate student instructor is unprepared, has not done the reading, misses classes, cannot be found in his office, is boring even when discussing interesting topics, is incomprehensible, does not try to be clear, talks to himself rather than to the class, assigns grades but does not make comments on performance, loses papers, exams and records, is aloof, anxious, hostile, disorganized, fearful, lazy, careless, or preoccupied.[8]

It does not seem necessary to debate the merit of these allegations; after all, they are based on evidence. The important point is that undergraduates notice such shortcomings and are critical of them.

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[6] Table 4-A in appendix A provides additional data on stipend holders, by the number of hours worked per week. For example, 20 percent of students working on their doctoral dissertations worked 40 hours or more per week in return for their stipends.

[7] Nowlis, Clark, and Rock, *op. cit.* The report in question is based on survey and interview evidence gathered at the University of Rochester, plus recommendations made by experienced educators attending two large conferences.

[8] *Ibid.*, pp. 27, 28.

A second perspective is that of the graduate TA's themselves. Three principal areas of concern emerge from their comments. First, the TA's feel that they do not receive enough guidance and assistance from senior faculty in their efforts to become effective teachers. According to the report:

> They want better preparation, supervision, and evaluation but usually do not know where to direct, or how to express, their requests or how to invite faculty to become more involved in this part of their graduate training.[9]

This view will probably come as a surprise to those who have felt that TA's might resent closer faculty supervision. Apparently the contrary is true–TA's take their teaching seriously and would welcome the assistance of experienced faculty.

A third problem in the words of the report:

> . . . is the teaching assistant's uncertainty about his status – or his certainty that his status is ambiguous. Although . . . he is assigned activities and responsibilities which are part of the role of teacher, he is granted few, if any, of the rights and privileges which properly pertain to the status of teacher . . . . He wonders whether his students consider him to be an apprentice who tried to learn to teach at some expense to the undergraduate, a menial assistant to the professor who does that which the professor might be doing but for which he has neither time nor inclination, or a bona fide teacher who gladly teaches.[10]

The problem of the graduate TA's status in the university hierarchy is one which will be discussed shortly; but, first, the third perspective cited – that of academic departments.

The views of departmental chairmen centered around administrative and management problems: the importance of financial support in recruiting students, and the selection, supervision, and evaluation of TA's. On these matters there was great diversity of opinion, reflecting the diverse situations of the departments – some small, some large; some new, some old; some prestigious, some not. Each chairman was interested in recruiting more good graduate students, although they disagreed on whether recruiting would be more difficult if teaching were a required part of the graduate program. Chairmen also agreed that the stipend for teaching was an essential factor in making graduate study possible for more students. But the interest of most chairmen was in improving their own departmental situations rather than in solving the general problem of support.[11] Perhaps the chairmen's views could be summarized by saying that they utilized their teaching assistants to accomplish two goals simultaneously: recruiting and supporting graduate students on the one hand and meeting certain undergraduate instructional obligations on the other.

The concern of graduate TA's with their academic status, already mentioned, requires some further comment. In chapter 1, Max Wise was quoted as finding that the morale of TA's was low;[12] similar evidence will be cited later. An interesting interpretation of low TA morale was advanced recently by Robert Dubin and Frederic Beisse in their article, "The Assistant: Academic Subaltern."[13] The viewpoint they expressed is that recent student unrest may be attributable to the fact that undergraduates, preceiving the low status of TA's, interpret it as being illustrative of a low regard for teaching on the part of universities in general. The unrest, then, may be taken as expressive of student dissatisfaction with any view that regards undergraduate instruction as of less importance than graduate education, research, and other university functions. As the authors state:

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[9] *Ibid.*, pp. 28-29.

[10] *Ibid.*, p. 29.

[11] *Ibid.*, pp. 31-32.

> It is the thesis of this paper that student activism against professors and college administrators had its principal source in the position and function of the graduate assistants in American higher education, which have made the career of graduate students anomalous and have changed the undergraduate teaching function. Student revolt was rooted in the graduate student body, among assistants, who have teaching responsibilities without corresponding legitimation of their authority and prerequisites to carry them out. Undergraduate students experienced their graduate assistant teachers as illegimate performers of the teaching function and were shocked, dismayed, and alienated.[14]

That the Dubin-Beisse interpretation may partially explain some student unrest is conceded. However, most of the evidence the authors cite is based on the Berkeley situation in 1964-65. As previously pointed out, TA's are widely employed by large institutions throughout the country, and analyses of student unrest elsewhere fail to substantiate the validity of the Dubin-Beisse view.. Others report that the more vocal and vociferous student criticism has been concerned with such existential problems as the war in Vietnam, the draft, the availability of "the pill" and drugs, civil rights, student power, and so on.[15] To report, therefore, as Dubin and Beisse do, that the plight of the TA is the "principal source" of student unrest is to say too much. The plight of the TA's has not yet become a widespread rallying point for student protest.

To the views of the TA's role, as seen by undergraduates, graduate students, and TA's, one final perspective needs to be considered – that of certain central administrative officers of the university. Paul P. Fidler's thorough study of graduate assistantships in the public universities of Florida in 1968 provides some evidence on this point. Fidler found that different groups of individuals thought that assistantships served quite different purposes. More specifically, central administrative officials felt that the major purpose served by assistantships was one of recruiting outstanding students to their institution. Members of the State Budget Commission (presumably reflecting legislative opinion) viewed the primary purpose as that of meeting university obligations for undergraduate teaching, research, and public service. Faculty members thought of assistantships as a means of training future college teachers. The TA's themselves thought that the purpose was to provide them with the wherewithal to continue their graduate studies.[16]

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[12] Wise, *op. cit.*, p. 90.

[13] *Administrative Science Quarterly*, Vol. 11, No. 4 (March 1969), pp. 521-547.

[14] *Ibid.*, p. 522.

[15] See, for example, the remarks of Edward Schwartz, president of the National Student Association, as reported in the *Chronicle of Higher Education*, Vol. 11, No. 6 (November 22, 1967), p. 4, or the *Chronicle* report on the S.D.S. meeting, Vol. 11, No. 9 (January 15, 1968), pp. 1-8. Dr. Lewis B. Mayhew has written that "students are really not protesting about teaching or the curriculum, although perhaps they should. It is their private lives and some of the moral dilemmas of the entire society which have them upset." See his article "The Future of American Higher Education," *Liberal Education: The Bulletin of the Association of American Colleges*, Vol. LIII, No. 4 (December 1967), p. 458.

The various perspectives cited in this section are important for two principal reasons. First, they provide a framework for understanding the statistical data concerning trends and relationships, together with the manner the teaching assistantship evolved to its present form and importance. Second, they provide a basis for judging the effectiveness of the TA system in meeting expressed needs and for understanding why the system is felt to be inadequate in certain respects. The nature of these inadequacies and some major recommendations to overcome them will be discussed in chapter 3.

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[16] Paul Perry Fidler, *An Assessment of the Purposes of the Graduate Assistantship in the State University System of Florida: Practices, Perceptions and Proposals* (Tallahassee: Florida State University, unpublished doctoral dissertation, 1968). The "central" administrative officers referred to were vice presidents for academic affairs, academic deans, and directors of sponsored research.

CHAPTER III POLICY STUDIES AND RECOMMENDATIONS

The purpose of this chapter is to analyze the principal recent proposals for strengthening the TA System by reforms in current conceptions and procedures. Three of these proposals grew out of institutional self-studies; another was the product of both internal and external surveys, supplemented by rather extensive conferences; still another came from a committee of graduate deans; and the final one is embodied in the design for a model training program proposed by two independent investigators. Brief mention will be made of additional studies completed or under way.

The three institutional reports to be discussed are from Michigan State University, Cornell University, and The University of California at Berkeley. All deal with education in a broad context, as indicated by their titles. For example, the Michigan State study is called *Improving Undergraduate Education: The Report of the Committee on Undergraduate Education*;[1] the Berkeley report is the well-known Muscatine Committee Report, *Education at Berkeley*;[2] and the Cornell Study is titled the *Report of the Faculty Committee on the Quality of Undergraduate Instruction.*[3]

Although only a small part of each report is devoted to reforms of the TA System, the specific references are within the context of striving to improve the quality of undergraduate education in its totality. Since previous discussions of TA's dwelt mainly on the benefits or disadvantages of teaching assistantship appointments, with little reference to the larger context of the total educational enterprise, the broader focus taken by these reports seems important. According to the Michigan, Cornell, and Berkeley reports, reforms are needed in the TA System as an indispensable means of strengthening undergraduate education. This is a view which can be readily understood by students, parents, alumni, and concerned public officials, and also seems more likely to receive a sympathetic hearing and support than one concerned primarily with graduate students themselves.

All three of the reports are fairly extensive documents. For purposes of this work, however, the emphasis will be on information each contains about TA's. To those interested in broad educational issues, a reading of the full texts is recommended.

The Michigan State University Report: "Improving Undergraduate Education"

The Michigan State University report is the product of a committee appointed in February 1967 by President John A. Hannah and given a broad mandate: "to reexamine our undergraduate program and to make whatever changes are desirable."[4] The substance of the report is contained in 78 numbered recommendations, together with an accompanying text of comment and explanation. Only three of the 78 recommendations deal explicitly with teaching by graduate students, but the report itself strongly endorses an earlier study conducted by the Educational Policies Committee—a study containing 13 recommendations dealing specifically with TA's.

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[1] East Lansing, Michigan: Michigan State University, n.d., (1967).

[2] Berkeley, California: University of California, Academic Senate, 1966.

[3] Ithaca, New York: Cornell University (unpublished), 1965.

The chapter on "The Quality of Teaching" indicates that one source of the committee's concern was the university's drive to develop programs of graduate education and research. One result of this drive, according to the report, was a "competition for the allocation of resources [which] places undergraduate teaching relatively low on the priorities of many colleges in the University."[5] The report continues: "There are other problems. The indiscriminate use of untrained [and occasionally unqualified] graduate students for an increasing share of undergraduate teaching is one problem now well recognized, but not yet resolved."[6] Observing that the use of TA's permits smaller classes than would be otherwise possible, the committee adds:

> If, however, the teaching assistant is permitted to teach without direction and supervision, the quality of instruction will be, at best, uneven and may be very poor. The committee feels that the use of teaching assistants, per se, is not detrimental to the quality of teaching, but that the instruction of undergraduates cannot be turned over to teaching assistants without close supervision and guidance.[7]

For the reasons stated, the committee made its first specific recommendation dealing with TA's:

> That there be established in each undergraduate department . . . a Committee on Teaching which will have the task of improving the quality of undergraduate instruction by supervising the training and work of teaching assistants, by orienting new faculty, by involving all teaching faculty, . . . and by recommending . . . such changes as may improve the quality of undergraduate instruction.[8]

In a section on "Teaching Assistants," the committee observes that since graduate assistants will contribute a large part to the undergraduate program, the improvement of undergraduate instruction will require "far more careful attention than has been the practice in the past to the selection, training and supervision of these young teachers."[9] The committee then strongly endorses an earlier report on TA's by the Educational Policies Committee—a report containing 13 separate recommendations.

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[4] *Improving Undergraduate Education, op. cit.*, p. 1.

[5] *Ibid.*, p. 22.

[6] *Ibid.*, pp. 22-23.

[7] *Ibid.*, p. 28.

[8] *Ibid.*, recommendation No. 9, p. 26.

[9] *Ibid.*, p. 35.

The first five of these called for a redefinition of the ranks below the level of instructor, and a careful assignment of TA's to only those responsibilities for which they are qualified. If the result of this assignment were to require regular faculty to fulfill teaching assignments, then senior faculty should be supplied.[10]

The next eight recommendations covered a variety of topics: Guidelines should be developed in order to attain a balanced proportion of undergraduates, graduate enrollments and TA's, and senior faculty advisers (No. 6); multiple-section courses should be strengthened through common texts, syllabuses, and examinations (No. 7); a regular system of TA supervision and training should be instituted (Nos. 8 and 9); all TA's should be required to use student course evaluations (No. 10); space should be assigned to permit TA's and supervisors to get together easily (No. 11); the university should make sure that all foreign graduate assistants were proficient in English (No. 12); and the university should develop a system "for more effective recruitment of graduate teaching assistants" (No. 13).[11]

The final recommendations dealing specifically with graduate TA's were as follows:

> A system of awards for excellence in teaching by graduate assistants be developed by the Office of the Provost.[12]
>
> In order to involve the very best graduate students in teaching, departments be encouraged to utilize qualified graduate students holding fellowships and scholarships as teaching assistants (for extra compensation where possible).[13]

From the report, it is obvious that the committee's concern for improving teaching extended to regular faculty members as well as to potential recruits and beginners. Illustrative of this concern is the recommendation that *all* teaching be evaluated more carefully, that teaching ability be made an explicit criterion in faculty promotions, and that a system of special awards and salary increments be used to reward especially effective teaching.[14] Clearly, the committee felt that improvements were desirable at many levels, and that a realistic system of awards and incentives would communicate its concern to the entire teaching corps.

The Muscatine Report: Education at Berkeley

Like the Michigan State University study, the Berkeley report covers a wide range of topics, from student living arrangements to curricular innovations to administrative reforms. Authors of the report were a committee of the Academic Senate, appointed in March 1965 in response to a suggestion by Acting Chancellor Martin Meyerson. In form, the report consists of 42 numbered recommendations, accompanied by an explanatory text and numerous statistical appendixes. Most of the recommendations dealing with TA's are contained in two chapters (out of 12) entitled "Graduate Education" and "The Teaching Assistant."

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[10] *Ibid.*, p. 36.

[11] *Ibid.*, pp. 36-37.

[12] *Ibid.*, p. 37.

[13] *Id.*

[14] *Ibid.*, pp. 40-43.

The chapter on "Graduate Education" contains two recommendations relevant to the TA System. The first recommendation (No. 36) states: "Departments should allow all graduate students to participate in undergraduate teaching appropriate to their skills, and should grant course credit to graduate students for work designed to relate the graduate curriculum to the problems of teaching."[15]

The second recommendation (No. 38) is preceded by a discussion which raises anew the old question of the relevance of research training as preparation for teaching. "The time has come," states the report, "to question the whole system which makes the Ph. D. the only acceptable form of certification for college teaching. Unless this question is raised, there is grave danger that the doctorate will continue to be devalued and, above all, that serious students wishing to make a career in college teaching will be discouraged because of the research-oriented character of doctoral training."[16] What follows is one of the most widely publicized recommendations of the report; namely, the proposal for a new Doctor of Arts degree "to require preparation equivalent to that normally required for advancement to candidacy for the Ph. D., but without requiring a dissertation."[17]

The chapter on "The Teaching Assistant" (one of the best discussions of the general problem this author has seen) is highly recommended, in its entirety, to anyone interested in the problem as it exists in a large, complex university.

An introductory section sketches the dimensions of the problem at Berkeley. It notes that if the number of classes taken by all students is divided by the types of instructors teaching them, then 31 percent of all classes were taught by TA's or were lab sections supervised by them. In lower division classes, 41 percent were instructed or supervised by TA's. In smaller classes–15 or fewer students – the TA's played an even larger role: 65 percent were handled by TA's; and in classes of 16 to 30, 63 percent.[18] These figures, in general order of magnitude, are similar to those at other large institutions. In view of the facts, the committee's conclusion seems well-founded: "There is perhaps no more widely agreed-upon opinion . . . than that the Teaching Assistant system is one of our major problems."[19]

The committee continues by citing some of the arguments for the TA System: In an institution as large as Berkeley, with its commitment to graduate education and research, there is simply no other way to provide adequate instruction for undergraduates; in addition, "it provides indispensable financial support for the [graduate] students; it is the best method we have of training college teachers; above all, it is a fine instrument for educating the student-teacher himself."[20]

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[15] *Education at Berkeley., op. cit.*, p. 167.

[16] *Ibid.*, pp. 169-170.

[17] *Ibid.*, p. 171.

[18] *Ibid.*, p. 175.

[19] *Id.*

The committee also recognized the weaknesses in the TA System as it has developed: the tendency to regard the teaching assistantship as merely a paid temporary job, and the dilemma of the TA, torn between the demands of his graduate program and those of his teaching assignment. "To make matters worse, we have been unable to appoint the best possible Teaching Assistants and to evaluate their performance by standards fitting to scholar-teachers." Continuing, the committee pointed out that some of the very best students, appointed to nonservice fellowships, had been excluded from teaching. "In some departments, Teaching Assistantships have been awarded by default; there have been too few graduate students to choose from, and some have been appointed before they were professionally competent to take on teaching responsibility." Furthermore, according to the report, not enough attention had been paid to the training and supervision of TA's. "Insecure, neglected, sometimes exploited, Teaching Assistants have responded in ways detrimental to the education of undergraduates. The creation of a Teaching Assistants' union, in opposition to the university as 'employer,' is a symptom of their dissatisfaction."[21]

Consideration of the foregoing facts leads naturally to the committee's next two recommendations: (1) "Teaching promise should be a major criterion for student appointments that involve teaching or tutoring, and teaching responsibilities should always be commensurate with the student's state of preparation. It follows that sustained classroom teaching should generally be reserved to the second year of graduate study and later"; and (2) "Frequent regular meetings between professors and Teaching Assistants, including graduate colloquia or teaching seminars ... should be part of the regular program in each department, and should be counted as teaching credit of faculty and course or service credit of students."[22]

In the section on "Morale" that follows, it is noted that, although TA morale "is by no means universally dismal, our staff found too many Teaching Assistants who testified that in one way or another their treatment had been lacking in professional respect."[23] Among measures to be taken to improve the situation, the committee felt that TA office facilities should be improved; that greater care should be exercised to see that the maximum 20-hour-a-week teaching load should not be exceeded; that students should not be burdened with repetitive and routine assignments; and that the TA's sense of participation in his department should be encouraged by explicit discussion of both curricular and administrative matters. The formal recommendation states that:

> ... all departments using Teaching Assistants should foster a climate of professional respect through (a) providing assistants with adequate physical facilities for both their teaching duties and their own studies; (b)

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[20] *Ibid.*, p. 176.

[21] *Ibid.*, pp.177-178.

[22] *Ibid.*, p. 182.

[23] *Id.*

> assigning work with careful attention to avoiding duties that are too heavy or unnecessarily menial, and with periodic review of appropriateness of assignments; and (c) establishing student-faculty discussions of standards of appointment, workable ways of handling student's requests, and other matters of common professional concern.[24]

A final section of the chapter on "The Teaching Assistant" is titled "Gradations and Compensations." The text endorses a threefold division of instructional assignments: an initial Teaching Traineeship, in which the student would observe regular faculty teaching and assist in nonclassroom duties; a second stage, during which TA's would be in charge of discussion sections in a large course; and a third stage, during which teaching assistants would have a greater degree of responsibility and independence, but still be supervised by regular faculty. The committee recommends that the "Readership" – involving only the grading of papers – be discontinued. With regard to compensation, the committee believes that:

> . . . an increase is needed in the stipends for graduate students assigned to teaching, so as to recruit the ablest candidates to the University, to provide them an attractive alternative to the now more rewarding research assistantships, and to remunerate them in a manner more fully commensurate with the difficulty and quality of the duties they perform.[25]

This summary of the Berkeley report would be incomplete if it did not refer to the very first recommendation; namely, that:

> . . . every departmental recommendation for a promotion to *tenure* ranks be accompanied by a formal dossier on the teaching performance of the candidate. Along with the Chairman's evaluation, this dossier should include all significant tangible evidence . . . , written reports by colleagues, evaluating the candidate's classroom performance on the basis of class visitations, and a statement by the candidate describing the rationale of his teaching efforts.[26]

This recommendation, if implemented, would effect a significant change in promotion procedures.

The Berkeley committee apparently felt, as did its counterpart at Michigan State, that university concern for better teaching should be communicated to the regular faculty, as well as to teaching assistants.

The Cornell University Reports on Undergraduate Instruction[27]

The Cornell report on the quality of undergraduate instruction had its origin in a request by President James A. Perkins to the Vice President for Academic

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[24] *Ibid.*, recommendation No. 41, p. 184.

[25] *Ibid.*, recommendation No. 42, p. 187.

[26] *Ibid.*, p. 44.

[27] Two reports are involved: *Report of the Faculty Committee on the Quality of Undergraduate Instruction*, submitted to the faculty of Cornell University, October 11, 1965; and *Report on Undergraduate Education*, by the Commission on Undergraduate Education, dated September 1966 (both multilithed by Cornell University).

Affairs, William R. Keast, to study undergraduate education at Cornell. Nine so-called "Keast Committees" were appointed, and all except one submitted reports by early 1965. The one exception was the Committee on the Quality of Undergraduate Instruction, subsequently reconstituted under the chairmanship of Dr. Alfred E. Kahn, with Dr. Raymond Bowers as executive vice chairman. In academic circles, this committee's report is usually referred to as the "Kahn-Bowers Report."

In form, the Kahn-Bowers Report is a 57-page document that includes a number of appendixes. The recommendations of the committee are not numbered consecutively, but grouped under the following headings: "The Proper Recognition of Teaching," "Improvements in Teaching," "The Special Problem of the Teaching Assistant," "Improving the Learning Atmosphere," and "Improving the Flow of Information."

Early in the report, the committee comments on its general task in a way which deserves mention. Although its concern is with the improvement of undergraduate instruction, the statement is made that:

> ... no university can set as its single goal the provision of the best possible undergraduate instruction. Nor could it achieve such a goal even if tried. This is not simply because the university serves several other constituencies, whose claims to its attention in some measure conflict with those of the undergraduate .... More important, the undergraduate is *not* best served by a program that is selected to serve only him. The university that expresses no interest in research, professional achievement or public service will not attract or keep the best teachers. It will therefore end up providing much less than the best possible undergraduate instruction as well.[28]

The task, as the committee goes on to say, is one of striking the best possible balance among several goals. This point, which was undoubtedly appreciated by the other committee reports discussed in this book, is an important one: it is relevant not only to teaching assistants, but also to other matters.

In a section entitled "General Observations," the committee states its strong conviction that "more attention must be given to improving undergraduate education at Cornell. Undergraduate instruction ... commands neither the attention nor the status it deserves. Our failure to achieve excellence in this sphere represents a piece of unfinished business."[29]

What follows is a list of student complants: the lack of adequate student-faculty contact ("the evidence for this is overwhelming"); uninformed student advising; unhappiness with large lecture courses; a "stifling" system of requirements, grades, and rote memorization; inadequately prepared teaching assistants ("the University is so little concerned with our problems that it does not even take the trouble to ensure that all teaching assistants speak English well enough for us to understand them"); lack of concern for existential problems; and a bureaucratic atmosphere which ignores individual problems.[30]

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[28] *Report of the Faculty Committee, op. cit.*, p. 2.

[29] *Ibid.*, p. 4.

[30] *Ibid.*, pp. 5-6.

The committee comments at length on each of these complaints in turn. In the section "The Teaching Assistant" it notes "many cases of undiscerning selection and inadequate supervision of teaching assistants and of the assigning to them of certain obligations of the professor,"[31] and deplores the fact that many of the best graduate students, because they hold nonservice appointments, are removed from teaching opportunities. It further observes that some departments, because of their "service" obligations, are admitting weak graduate students to meet their teaching obligations.[32]

The committee begins its recommendations with the statement that:

> . . . there is only one ultimate determinant of the quality of undergraduate instruction, and only one ultimate source of its improvement – the individual teacher himself. If the quality of our teaching is not as high as it can and should be – and that is our finding – then the fundamental solution is that each of us devote a considerably greater effort to making it better. That is our one essential recommendation. . . . What we call for, than, is an alteration – not a fundamental transformation, certainly, but still a marked change – in the Cornell ethos.[33]

Specific recommendations designed to improve the use of teaching assistants are enumerated. First, "the professor ought to provide active and continuous guidance to his teaching assistants," including visiting TA's in their classes and discussing their performance with them. He should meet with them regularly and should assume some responsibility for final grades. "Departments are urged to consider offering a seminar to graduate students on the teaching of their subjects."[34]

Second, teaching assistants should be paid more than research assistants for equivalent working hours, partly to attract better students, partly to compensate for work which does not advance the student's research.[35]

Third, "the University, as an institution, and its staff, through membership in national committees and societies, should strive for incorporation of some teaching requirement as a condition of any fellowship for graduate study."

Finally, "the teaching assistant should post and hold sufficient office hours convenient for student consultation and should be provided with space adequate to perform this function in reasonable privacy."[36]

In addition to these recommendations, the committee gave its endorsement to a discussion by W. Donald Cooke, Dean of the Graduate School, of "The Role of the Teaching Assistant in Undergraduate Education," which is included in the report as appendix D. Some of Dean Cooke's points have been cited among committee recommendations; four others deserve special mention:

1. Wherever possible, the maximum weekly teaching load should be reduced from 20 to 15 hours.

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[31] *Ibid.*, p. 8.

[32] *Id.*

[33] *Ibid.*, p. 19.

[34] *Ibid.*, p. 24.

[35] *Ibid.*, p 26.

[36] *Ibid.*

2. Teaching assistants should have fellowship support during the summers, so that they are not forced to take employment which will prolong the period of their dissertation research.
3. TA's should not hold their appointments for longer than 2 years. Beyond that time, they should be supported as fellows or RA's.
4. For the more routine duties presently performed by some TA's, other regular employees should be hired. This would decrease the number of assistantships, but hopefully would improve the quality of students holding them.

After the Kahn-Bowers Report was submitted to the Cornell faculty in October 1965, President Perkins and the faculty created a University Commission on Undergraduate Education to assist in implementing its recommendations. Commission findings, presented in September 1966, constitute a kind of progress report on that made approximately 1 year earlier. Of particular interest are its point-by-point comments on recommendations concerning teaching assistants.

With regard to the recommendation that some teaching be required of all Ph. D. candidates, the commission reported the feeling of some faculty members that such a requirement might place Cornell at a disadvantage, vis-a-vis other graduate schools, in recruiting good graduate students. If such were the case, a lowering in the quality of graduate students would result. Consequently, no attempt had been made to secure general faculty endorsement for this step. Individual departments, however, had been encouraged to adopt this requirement, and at least one of them had done so.

As for the proposal that TA's should be paid more than RA's, the commission reported little if any difference in remuneration, and where such disparity did exist, it seemed to favor the TA's.

Concerning the committee recommendation that the faculty provide more careful supervision of TA's, the commission observed a major problem: "...this suggestion is, of course, difficult to enforce, touching as it does on the rights and responsibilities of individual faculty members."[37] The commission then cited several instances of departmental efforts to provide adequate supervision, and expressed the hope that, "as with many other problems, it seems likely that recent attention focused on the problems of teaching assistants has, without specific action, increased individual concern."[38]

Regarding related recommendations of the committee that the TA's weekly load be reduced from 20 to 15 hours and that they not teach for more than 2 years, the commission commented:

> A study has been done to see what the cost of implementing such a plan would be [i.e., the reduction from 20 to 15 hours weekly]; the various department chairmen estimate that – if the percentage of teaching done by TA's remains constant – the cost would be about $600,000 a year . . . . Further, many professors indicate hesitation to limit the normal teaching assistantship to two years because this eliminates the most mature and experienced graduate students from the teaching ranks.[39]

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[37] *Report on Undergraduate Education, op. cit.*, p. 5.

[38] *Ibid.*, pp. 5,6.

[39] *Ibid.*, p. 6.

As for the inability of some foreign graduate students to handle English effectively, the commission reported an agreement by the deans that (1) no students who were provisional candidates would be appointed as TA's, and (2) no students from non-English-speaking countries would be appointed as TA's unless they had presented evidence of ability to speak English.[40]

The commission's comments have been reported so fully in this chapter for two reasons. First, they show the extreme difficulty in achieving changes in a university's accustomed way of doing things, even when, as in the Cornell case, the recommended changes are not disputed on the basis of either correctness or wisdom. Second, they also show how deeply embedded in the institutional structure the TA system is. Not the least of the objections cited, of course, is the great cost of the proposal – and what university is not hard pressed today for money to meet its many outstanding commitments? Even the suggestion to limit TA appointments to no more than 2 years meets with the objection that such a practice would eliminate experienced teachers. Yet some people still question whether or not there is a shortage of qualified faculty! One wonders how sizable a shortage would be created overnight if all universities were to enforce the 2-year limit on TA appointments. If the Cornell situation were a representative one, it could total several thousand.

The University of Rochester Survey Report: The Graduate Student as Teacher[41]

The University of Rochester report, which grew out of a project initiated by Dean Kenneth E. Clark of the College of Arts and Sciences, was supported by the Esso Education Foundation. The undertaking included a study of TA's at the university, a survey of other university programs and studies, and two on-campus conferences during the summers of 1966 and 1967, to each of which approximately 30 academic and other interested officials were invited. The report includes a description of how universities utilize TA's in a variety of courses; it also includes a set of 10 principles which conference attendees agreed should govern any organized program designed to properly educate, supervise, and utilize graduate teaching assistants. Since the major interest of this volume is in the 10 principles, a summary of them is included:

1. "Progressive sequence." The TA experience, which should begin with orientation and observation, should involve assignments of increasing challenge and responsibility.
2. "Elimination of blind alleys." The teaching assistantship which involves only paper-grading and routine nonclassroom duties should be eliminated. Such work should be performed by people paid on an hourly basis.
3. "Varied experience." TA's should gain experience in a variety of classroom techniques and situations, large lectures, small seminars, programed instruction, audiovisual procedures, and so on.

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[40] *Id.*

[41] Nowlis, Clark, and Rock, *op cit.*

4. "Integration of research and scholarly competence with teaching skills." TA assignments should be related, wherever possible, to the graduate student's own interests and growing professional competence, and not require that the two be separated.
5. "Criteria for reappointment." While most graduate students should be eligible for a one-term apprenticeship, reappointments should be based on teaching effectiveness and promise.
6. "Support and attainment of the degree." A successful program should provide for student support over a 3- to 5-year period, with varying combinations of course work, teaching, and research. Time required for teaching should not be so great as to prevent the student from completing his degree within normal time limits.
7. "Professional status." The commission quotes, in full, recommendation No. 41 from the Muscatine report at Berkeley: the need for adequate physical facilities for TA's, periodic review of the appropriateness of assignments, and student-faculty discussions of all relevant matters of concern. The comission also feels that the title given the TA should accurately reflect his level of responsibility.
8. "A cooperative responsibility." Resources both within and outside the university should be utilized to improve the training and supervision of graduate student-teachers.
9. "Academic orientation." The teaching assistantship should provide the student with some insight into the ethics of the teaching profession, the importance of good academic citizenship, the varieties of educational institutions and students, and the importance of balance in his own professional obligations and interests. "He can profitably be included in meetings of faculty dealing with educational issues relevant to his assignments."
10. "Evaluation." The performance of TA's should be evaluated in various ways and the results should be relayed to the student for use in improving the course or program.[42]

These, then, are the principles representing the consensus of the Rochester conferences. It should be remembered that particpating individuals represented many institutions and a broad range of disciplines; the fact of their agreement, therefore, is important not only because of its substantive value, but also, perhaps, because it is an indication of a more favorable attitude on the part of faculty toward such problems. Hopefully, also, the principles can serve as guidelines to other institutions interested in improving their utilization of TA's in undergraduate instruction.

Recommendations of the Committee on Student Aid of the Association of Graduate Schools

In 1966 the AGS Committe on Student Aid asserted that graduate teaching assistantships were often regarded as inferior to other graduate student awards.[43] One year later the committee reaffirmed this view in the following words:

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[42] *Ibid.*, pp. 6-23.

> At most institutions most teaching assistantships are still not part of a multi-year award and are still the least desirable among the various graduate awards . . . . The basic reason for this unfortunate situation is that the teaching assistantship is still generally regarded as a source of cheap labor . . . .[44]

To raise the status of TA's, the committee asserts that the teaching assistantship must be viewed in a different light:

> The teaching assistantship must be viewed as a part of the graduate student's education. Instead of the present cheap labor premise, the basic premise should be that *meaningful teaching experience is an essential part, and should be an integral part of a doctoral program.* Teaching experience is important to the doctoral candidate not only because he will probably become a college or university teacher, but because teaching makes him a better scholar, requiring – as it does – disciplined, orderly thought, clear communication, presentation of convincing evidence, and respect for the opinions of others.
>
> Once we accept this basic premise, the teaching assistantship appears in a different light altogether. Several practical conclusions may be deduced immediately:
>
> 1. Every Ph. D. candidate should be required to teach;
> 2. His teaching should be supervised or directed until he is fully qualified to teach his own class;
> 3. So that he may complete his doctorate in a reasonable length of time, he should be allowed to teach only a limited time and with a limited load;
> 4. For the same reason, he should be supported with nonservice awards for at least one year and preferably two;
> 5. In most cases, teaching should be postponed until the second year of graduate study.[45]

One might note, parenthetically, that, although these recommendations are phrased in quite general language, numbers 2 through 5 are similar to several of the Michigan State, Berkeley, and Cornell recommendations, as well as to those in the University of Rochester report. The recommendation that every Ph. D. candidate be required to teach, however, goes beyond any of the other study recommendations thus far considered. It is not too difficult to imagine why the other committees refrained from such an endorsement. It has already been noted that Cornell refused to accept such an idea. In addition to Cornell's reasons, there is the quite justified fear that a literal acceptance would involve the conduct of classes by foreign students not proficient in English–to the detriment of undergraduates. A second point is that the recommendation rests on a false premise, i.e., that doctoral candidates have never taught before. The fact is that many students in a typical graduate school will already have had teaching experience at either the college or secondary level. Finally, the adoption of one more general requirement seems to contravene the trend of recent reforms, the general objective of which has been to tailor requirements more to individual needs and capacities, and to abolish inflexible rules of universal applicability.

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[43] *Association of Graduate Schools Proceedings,* 1966, *op. cit.,* p. 27.

[44] *Association of Graduate Schools Proceedings, 1967, op. cit.,* pp. 75-76.

[45] *Ibid.,* p. 77.

The Koen-Ericksen Model Training Program

The most thorough and recent analysis of what universities are doing to prepare college teachers is a 1967 report by Frank Koen and Stanford C. Ericksen.[46] Based on an intensive analysis of departmental programs in those universities which award about 90 percent of all Ph. D.'s, the study was designed primarily to identify the best features in each program, which, in turn, would serve as the nucleus of a model program. The problem of identifying the best features was described by the authors as follows:

> A viable model for a training program should meet the following criteria: (a) each teaching assistant will receive only such instruction and guidance as is necessary and sufficient to enable him to plan and conduct an undergraduate class in his area of subject matter competence; (b) a model should be sufficiently flexible to serve the basic needs of the various disciplines; (c) all aspects of a training program should be directly applicable to real instructional problems and the training time be kept to a minimum; (d) the most useful form for a training program is an evolutionary one, in which systematic and continuing self-evaluation is a design feature; and (e) an efficient program will minimize increases in faculty time allotted to supervisory activities.[47]

To meet these criteria, Koen and Ericksen formulated a model consisting of three functional stages for the graduate student–stages which they call "the apprenticeship," "the assistantship," and "the instructorship." To make sure that a student would advance in proportion to his ability to assume more demanding tasks, each stage was to be defined in terms of an individual's responsibilities and competence, rather than in terms of time periods involved.[48]

The apprentice stage would, as the name applies, involve observing experienced teachers and doing some of the essential but subsidiary tasks of teaching – assembling and evaluating reading materials, preparing lab experiments, contributing test questions, grading exams, and so on. The student would occasionally conduct a class under supervision, but would not do so on a regular, continuing basis. Since he would serve essentially as an assistant to a regular faculty member, he would have the opportunity of conferring with him regarding all the kinds of problems connected with organizing and conducting a course.[49]

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[46] *An Analysis of the Specific Features Which Characterize the More Successful Programs for the Recruitment and Training of College Teachers* (Ann Arbor, Mich.: The Center for Research on Learning and Teaching, University of Michigan, 1967).

[47] *Ibid.*, p. 40.

[48] *Ibid.*, p. 41.

In the next, or teaching assistant stage, the student would be provided with a course outline and be placed in full charge of a small class or section. He would also participate in a workshop on testing, and, when appropriate, be introduced to group dynamics and programed instruction. His teaching would be supervised; therefore, he would have the benefit of criticism from a more experienced teacher.[50]

Students would be advanced to the instructorship, or the third stage of the model, only if they were genuinely interested in college teaching as a career. At this stage, a student would be fully responsible for planning and conducting a course. In addition, he might be given a supervisory role with respect to students in the apprenticeship or assistantship stages. Serving as an adviser to other students would be an essential part of his own training, since he would have to explain to them the rationale for both the substance and strategy of particular approaches. Finally, as Koen and Ericksen state, he should be involved

> . . . to a limited extent in departmental affairs, such as service on faculty committees, attendance at some faculty meetings, participation in curriculum review, and preplanning of courses. The aim here is to introduce serious young teachers to the full range of extraclassroom and administrative aspects of the college teacher role.[51]

Other Studies and Responses

In 1967 the Association of American Colleges and the Council of Graduate Schools established a Liaison Committee to study the preparation of college teachers. After surveying institutional practices, the committee sponsored a conference in December 1965. The conference report, *Preparing the College Professor for Liberal Arts Teaching,*[52] represented the consensus of presidents and deans attending the meeting. On the subject of graduate teaching assistants, their major recommendation was as follows:

> The best means of preparing graduate students for the teaching responsibilities of the college professor is by providing them with a limited supervised teaching experience under the guidance of experienced and successful faculty members. The supervised teaching experience, or Teaching Internship, should be established for the explicit purpose of more adequate preparation of future college teachers and improvement in quality of the instruction of undergraduates . . . It should be awarded to advanced graduate students on the basis of proven intellectual ability

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[49] *Ibid.*, pp. 41-42.

[50] *Id.*

[51] *Ibid.*, p. 43.

[52] Washington: The Association of American Colleges and the Council of Graduate Schools in the U.S., n.d. (presumably 1966).

> and teaching promise rather than for promise as a new graduate student.[53]

Probably many institutions have made more or less extensive studies of their own TA systems, although the author knows of only a few. In 1963, the University of California at Los Angeles Graduate Students' Association made a survey of TA's that resulted in the appointment of a Chancellor's Joint Committee on the Teaching Assistant, with representation of both TA's and regular faculty. At Michigan State University the Educational Policies Committee made two studies of TA's, in 1964 and 1966. The Universities of Cincinnati, Utah, and Wisconsin have also made recent studies. Since the results were intended only for internal consumption, they have not been published. And, although it is difficult to summarize differences in institutional history and practice, the studies do reveal certain common objectives: a desire to lessen the more obvious differences in the duties and pay of TA's in different fields and departments; to introduce greater clarity and consistency in the matter of titles and responsibilities; to reduce unreasonable teaching loads and inappropriate–including too lengthy–assignments; to provide office space adequate for TA's to consult with their students, and so on. The need for such measures is amply documented. In fact it seems that most universities employing large numbers of TA's will, in their own interest, take such steps to introduce greater rationality and equity into their policies. The efforts by these pioneering institutions are certainly to be applauded.

Of the many attempts to study and improve utilization of TA's, perhaps the most imaginative has been introduced by The University of Michigan. It represents an effort to cope with the problem in the context of the entire educational process. In 1962, in response to faculty recommendations, the university established The Center for Research on Learning and Teaching, attached to the Office of the Vice-President for Academic Affairs. The Center has its own budget, and a full-time research staff, plus part-time faculty on loan for special projects. Research findings are regularly reported in the center's publication *Memo to the Faculty*, and the center conducts workships for faculty in guidance, testing, programed instruction, and similar areas. Through the center, each new TA at the university is provided with a copy of McKeachie's *Teaching Tips*, an excellent handbook of great help to both new and experienced teachers.[54] If other institutions were to distribute this handbook to new TA's, they would, by this one step alone, probably do much to improve the effectiveness of teaching at all levels.

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[53] *Ibid.*, p. 10.

[54] Wilbert J. McKeachie, *Teaching Tips: A Guide-Book for the Beginning College Teacher* fifth ed. (Ann Arbor, Mich.: George Wahr Publishing Co., 1965.)

CHAPTER IV REVIEW AND CONCLUSIONS

Evidence presented in this report seems to justify the conclusion that existing university practices in the employment of TA's have, in many cases, led to undesirable consequences for both graduate and undergraduate students, and that these consequences are now noticeable beyond the campuses. The whole character of the educational enterprise, as well as the Nation's yield of highly trained individuals for specialized tasks of every kind, are being adversely affected. Consequently, the TA System needs to be restructured and reformed.

This conclusion is by no means a one-sided condemnation. It must be tempered by a recognition of the great benefits which have resulted from the TA System: a vast expansion of educational opportunities at the highest levels; a means by which many institutions have been able to partially cope with the problem of limited resources vis-à-vis rising costs and expanded commitments, and a significant increase in the nation's supply of highly trained manpower.

The relevant questions now are whether the TA System can be improved so that it can perform more effectively its legitimate educational objectives, and whether or not practices recognized as ineffective can be eliminated.

This chapter begins with a review of the evidence presented earlier, proceeds to an analysis of suggested reforms in the TA System, and concludes with a brief discussion of present problems and alternatives.

The Dimensions of the TA Problem

The serious problems of the TA System are not evenly distributed over the entire panorama of American higher education. Most seriously and directly affected are only those institutions classified as "universities." Data presented in chapter 2 showed that 85 percent of all TA's were in such institutions and that the proportion in public institutions has grown to about two-thirds of the total, while the private institutions' share has been steadily declining. Further, although the proportion of TA's to regular faculty in all institutions is about 17 percent, in all large institutions it is approximately 60 percent, and in large public institutions, nearly 65 percent. The TA problem, then, is concentrated in the larger public and private institutions, where it appears that a substantial proportion (one-quarter to over one-half) of all lower division instruction is carried on by graduate teaching assistants.

The fact that a relatively small number of institutions (120 to 130) is seriously affected by the TA problem is, of course, no measure of its true importance. For it is these same institutions that enroll over 60 percent of all graduate students and confer over 90 percent of all doctoral degrees. If American society values the development of new knowledge and the availability of disciplined, organized intelligence in solving its problems, then it is clearly in the national interest to support this critical minority of institutions and to help them improve their programs of advanced training. The only alternative is a qualitative deterioration in every aspect of private and public life.

Major Criticisms of the TA System: A Bill of Particulars

Since the TA System is deeply and inseparably embedded in the structure of American higher education, it is hardly possible to criticize the former without implicating the latter. And certainly anyone who values the accomplishments of American higher education would not want to propose reforms so radical that they would, in effect, endanger those accomplishments. In considering the possibilities of reform, one must, therefore, begin by recognizing that the TA System, in its main features, has been an outgrowth of doctoral training, and will undoubtedly remain intimately associated with it. And it does not seem likely, or desirable, that the goals of doctoral training will be quickly or radically changed from what they have been–with such notable success for nearly one hundred years. In other words, the major purpose of doctoral education will continue for some time to be what it has been–preparation for independent research. It is not likely to become "training for teaching," if teaching is thought of as something essentially different and separate from research.

The only question, then, would seem to be whether the goals of doctoral training cannot be sufficiently broadened to include some preparation for teaching as well as for research. The arguments for including the former are impressive. Historically, large numbers of doctoral recipients have become teachers in higher education, and in nearly all fields a majority of doctoral candidates expresses a preference for such careers after earning their doctoral degrees. Further, it has been persuasively argued that the candidate's own understanding of his field is enhanced by some teaching experience, and that the skills he develops as a teacher are useful in any type of subsequent employment.

All of the policy studies and recommendations considered earlier in this volume have accepted the idea that some teaching experience is beneficial to doctoral candidates. The reports at Michigan State, Berkeley, and Cornell, for example, uphold this idea. The University of Rochester conferences endorsed it. The Association of Graduate Schools and the Council of Graduate Schools in the United States, through various committee reports, have supported it. And the Koen-Eriksen model program was designed to make possible a better preparation for teaching without detracting from research training–even to improve the latter. Thus, there seems to be a growing consensus regarding the major goal and objective of reform–reform which would do explicitly and for the whole system what in the past has often been done only intermittently and partially. This consensus should be kept in mind while reviewing a brief summary of the major criticisms of prevailing practices.

• *The Ph. D. "Stretchout"*

Data presented in chapter 1 showed that holding a teaching assistantship was a major factor in prolonging completion of requirements for the doctoral degree–a conclusion confirmed by everyday observation in any American graduate school. The conclusion is hardly surprising in view of the fact (cited in chapter 2) that 15 percent of TA's, in a recent survey, worked 40 or more hours a week and that a quarter worked 25 or more. Even if a graduate student's workweek totals 60 hours, this represents a substantial amount of his time and involves a major expenditure of energy. The point scarcely needs further elaboration: Many TA appointments demand so much of a graduate student's time and energy that they seriously delay the attainment of his graduate degree. Measures to correct this situation would clearly improve the morale of TA's and would probably improve the quality of undergraduate instruction as well.

• *Availability of TA Appointments*

A major argument in favor of the TA is that teaching helps to broaden and deepen a graduate student's understanding of his field, and thereby helps him prepare for a future career, whatever form that career may take. As Bernard Berelson observed a decade ago, the argument is well taken, but in practice many of the ablest students–those on duty-free stipends–are excluded from such experience while in graduate school. Figures presented in table A-3 of appendix A show that in all fields except the "humanities," TA's constitute a quarter or less of all stipends; in the humanities, TA's were over 40 percent of all stipends. If the values of teaching experience are as beneficial as claimed, then a graduate school is not doing justice to its students unless it makes the experience available to all of those who are interested and qualified. Steps to make teaching-assistant opportunities more widely available to interested and qualified students are clearly called for.

• *Criteria for Appointment and Promotion of TA's*

Koen and Eriksen in their 1967 report found that "typically, teaching assistants begin their instructional duties in the first graduate year with very little formal consideration of their teaching potential or competence,"[1] and the "selection of prospective teachers in the usual sense of the word often does not obtain."[2] Similarly, Max Wise found that "little or no attention is given to the quality of the person appointed."[3] Harold Orlans reached the same conclusion in his 1962 study,[4] and the university studies summarized in chapter 2 of this work show that the problem is still a major one. A not infrequent undergraduate complaint is that section or laboratory TA's cannot handle English adequately; and instances are known in which TA appointments are offered, by phone or mail, to students not known personally to a single faculty member.[5]

Closely related to the question of criteria for initial appointment is the matter of supervision and evaluation of performance, on which a decision for reappointment or promotion to a higher rank or salary may be based. There is fairly general agreement among informed observers that the current situation leaves much to be desired. For example, Martin Trow found that "despite pious wishes to the contrary most TA's get little supervision or help from the instructor of the course on their work in their sections."[6]

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[1] *An Analysis of the Specific Features Which Characterize the More Successful Programs for the Recruitment and Training of College Teachers, op. cit.*, p. 14.

[2] *Ibid.*, p. 19.

[3] Wise, *op. cit.*, p. 90.

[4] Harold Orlans, *The Effects of Federal Programs on Higher Education: A Study of 36 Universities and Colleges* (Washington, D.C.: The Brookings Institution, 1962), pp. 68-74.

[5] These and other criticisms of TA employment are detailed at length in the report of the AGS Committee on Student Aid, AGS *Journal of Proceedings*, 1967, pp. 75-78.

Koen and Eriksen also found that there was a lack of adequate supervision, and that "systematic attempts to evaluate the performance of teaching assistants . . . are fairly unusual."[7] Obviously, supervision and evaluation are closely related: without supervision, evaluation becomes meaningless; and without evaluation, supervision becomes perfunctory or arbitrary. In the absence of both, the student's reappointment or promotion has no relationship to his actual performance. There is, then, little incentive for him to try to improve his teaching performance. It seems clear that the instructional ability of TA's would be improved if criteria for appointment and promotion included adequate teaching performance, and if supervision and evaluation were designed to measure and improve teaching effectiveness.

• *Appropriateness of Appointments to Student Capabilities*

Most careful observers of the TA System have not found cause to question its basic assumption, i.e., that properly selected and supervised graduate students can adequately instruct undergraduates, at least in lower division courses. Most of the criticisms, therefore, center on the "proper" degree of preparation and supervision. Some differences among fields exist regarding this question, but there is general agreement that, whatever the level of the course, the instructional responsibility of the TA should be appropriate to his knowledge and competence.

If university practices can be taken as an indication of what universities believe, then it appears that almost no preparation at all is "proper" for the majority. Koen and Eriksen reported that two-thirds of the teaching assistants in their survey began teaching in their first year of graduate study.[8] This finding, together with others concerning the lack of orientation and supervision, must mean that most TA's begin their jobs with little preparation. The wisdom of appointing first-year graduate students can of course be questioned on the ground that it deprives undergraduates of the benefits of instruction by mature and knowledgeable faculty; also, that it unduly delays the graduate student who should (ideally) be devoting full time and attention, especially during the first year, to his own studies. Whether these arguments are accepted or not, the practice seems indefensible unless a serious effort is made to see that graduate students are fully prepared to meet their teaching responsibilities.

A related aspect of the appropriateness of appointments has to do with their duration. Koen and Eriksen reported that "in approximately 45% of the programs the graduate student teaches for three or more years."[9] One would like to know how many TA's teach the more-than-3-years, and how much more. But though detailed evidence is lacking on this point, much is known about the practice of frequent reappointments. Everyone in university life is familiar with cases of what seem to be "career-TA's." The practice is easy to condemn, but difficult to change–witness the reluctance of the Cornell faculty, mentioned in chapter 3, to accept the Graduate Dean's recommendation that TA appointments be limited to 2 years. Experienced TA's often play an important role in both the instruction and administration of large courses, and senior faculty and administrators are understandably reluctant to part with their services unless they can find experienced replacements. A change in this practice would be highly desirable in order to permit students to expedite the timely completion of doctoral programs.

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[6] Martin Trow, "The Undergraduate Dilemma in Large State Universities," *Universities Quarterly*, XXI, No. 1 (December 1966), pp. 20,21.

[7] *An Analysis, op. cit.*, p. 31.

[8] *Ibid.*, p. 37.

[9] *Ibid.*, p. 20.

• *Lack of Faculty and Administrative Concern*

Recent studies of ongoing training programs for TA's generally agree that a major problem in making these programs effective is an absence of faculty and administrative concern. Koen and Eriksen, for example, found that the two major factors inhibiting the development of such programs were "lack of faculty interest in the training-supervision role" and "shortage of staff for carrying out training functions."[10] Max Wise reached a similar conclusion, and added:

> . . . the university officers who carry general responsibility for the quality of undergraduate teaching are almost never directly involved either in the selection of the teaching assistants or in the development of useful and productive activities to help them improve their teaching ability. That is, the president and deans of undergraduate colleges in the universities often have little or no contact with the teaching assistant programs . . . they seldom speak knowledgeably of the process of selection or supervision.[11]

Regarding the reasons for these attitudes, Koen and Eriksen mention the fact that in the institutions they surveyed, over two-thirds of the faculty carried a full load of instructional and administrative duties, with no working-load credit for supervisory duties.[12] When this fact is considered, together with the fact that faculty prestige depends on scholarly research and publication, not on a reputation for producing successful teachers, it is understandable that faculty members show little interest, and that their apathy is reflected by a perfunctory attitude on the part of TA's toward their teaching responsibilities.

As for central administrators, their burdens have been so complex and demanding in recent years that one hesitates to blame them for neglecting a matter which has been generally regarded as a faculty prerogative and responsibility. No doubt many administrators have been aware of the problem, but uncertain what they could do about it without additional, and large, financial resources, for which there are always many urgent claims.

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[10] *Ibid.*, p. 18.

[11] Wise, *op. cit.*, p. 19.

[12] *An Analysis, op. cit.*, pp. 16 and 35.

But in any case, Wise and Koen and Eriksen agree that without increased leadership from central administrators, few changes are likely. Max Wise, for example, says that if there is to be any widespread improvement in the use of TA's, "general university officers will have to provide much more thoughtful and continuous leadership."[13] And Koen and Eriksen agree, stating in their conclusion, "It is likely that a real strengthening of teaching-assistant training is heavily dependent on vigorous support at higher administrative levels, both within and above the department."[14]

Whether such "higher administrative" support will materialize is conjectural. There are signs of an aroused public interest in many quarters. Perhaps it will be sufficient to bring about a restructuring of educational priorities so that improvement of undergraduate teaching–both by regular faculty and by graduate teaching assistants–will receive greater support.

• *TA Quality and Morale*

Although the quality of teaching assistants can be separated, conceptually, from problems of morale, the fact is that the two seem so inseparably related they are treated together here.

Concern about the quality of graduate assistants has been expressed over a long period of time. One of the first carefully documented studies was that of Harold Orlans, who in 1962 found that the expansion of Federal fellowships was lowering the quality of undergraduate instruction in science courses. More specifically, he discovered that instruction in undergraduate science courses was being carried on by part-time graduate students, by undergraduates, and by foreign graduate students. In summarizing the situation, he concluded that

> . . . altogether, the picture is not a happy one, and the chairmen of major science departments were widely agreed that, at present, it is the poorer and not the best graduate students who are likely to be teaching assistants.[15]

In the area of the humanities, Orlans found that the situation was quite different because duty-free stipends were so scarce that teaching assistantships went to the best, most advanced students.[16]

Since Orlans' study, the number of Federal fellowships has increased, with the perhaps predictable result that the conditions he found in the sciences have now come to prevail in other fields as well. The result is the widespread opinion, in many major graduate schools, that the teaching assistantship is no longer regarded as one of the most highly prized student appointments.[17] Without a reversal of this view, it will be difficult to improve the quality of TA instruction.

The declining status of the TA appointment makes it clear why the problem of TA quality is related to questions of TA morale. If TA's feel that they are exploited, if they realize that their stipends are less desirable than others, if their teaching responsibilities cause delays "beyond reason" in completing work for advanced degrees, then one would expect to find evidence of poor morale. And that poor morale exists is the judgment of many informed observers, whose comments to this effect have been previously quoted.[18] Max Wise believes the poor morale he found could be attributed to the TA's belief that

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[13] Wise, *op. cit.*, p. 98.

[14] *An Analysis, op. cit.*, p. 51.

[15] Orlans, *op. cit.* p. 71.

[16] *Ibid.*, p. 72.

[17] See statements to this effect by the Association of Graduate Schools, cited in chapter 1, footnote 14, and chapter 3, footnote 44.

> . . . they are being exploited by their institutions in order to meet the press of expanding undergraduate enrollments. They report that they get little help from senior faculty members on the teaching problems they encounter. They seldom report that they are treated as young colleagues by members of the regular faculty; instead, more frequently they report that they are treated as individuals of low status employed to do work that no one else wishes to do.[19]

If institutions fail to heed these warnings, it is not difficult to foresee some of the consequences. First, the Dubin-Beisse theory (discussed in chapter 2) about the dissatisfaction of "academic subalterns" (the authors' phrase for TA's) leading to increased undergraduate unrest may become a reality. Second, if the dissatisfaction of TA's fails to find a sympathetic hearing and if remedial action is not taken, TA trade union organizations, militant in nature, may be formed.[20] The TA's can hardly be expected to remain unaware of the important role they play in undergraduate instruction, and if their grievances are ignored, they may resort to more formal and aggressive actions. Hopefully, their legitimate dissatisfactions can be directed–by timely and appropriate corrective measures–into nonmilitant channels.

• *Administrative Costs of the TA System*

In addition to the foregoing criticisms, there are other less obvious consequences, some of which are seldom noticed. One is the cost in time on the part of regular faculty, especially in teaching large lecture courses. Martin Trow, in the article already cited, describes the situation as follows:

> TA's also paradoxically distract faculty members from their undergraduate teaching. Especially in the large, introductory courses, a good deal of the teacher's time is spent organizing, co-ordinating, and administering the work of the TA's. Teaching for those faculty members becomes increasingly the task of administering and overseeing the work of others–though this rarely involves actually supervising and criticizing their classroom work in their sections. This is an important though largely concealed drain on the time and energies of those who teach the large undergraduate courses.[21]

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[18] See Max Wise's comment in chapter 1, footnote 2; also, The University of California at Berkeley and University of Rochester reports, chapter 3.

[19] Wise, op. cit., p. 90.

[20] A TA local, affiliated with the AFL-CIO, has been formed at The University of California, and actions of a similar nature are reported at several other universities. See *The Chronicle of Higher Education*, Vol. 1, No. 13 (May 17, 1967), pp. 1 and 3.

[21] Trow, op. cit., p. 21.

Trow does not suggest how this "concealed drain" can be avoided, and indeed it is hard to see how it could be, short of abolishing the TA System completely. As Trow recognized, a dilemma is involved. He noted that administrative work pertaining to large courses seldom required visits to the TA sections, and lack of classroom supervision has been previously cited as one of the faults of the TA System. But of course better supervision would involve more faculty time, not less, so both the existing system and the correction of it seem to be part of the same problem–the use of scarce faculty time. No doubt this is a major reason why administrators are reluctant to limit TA appointments to 1 or 2 years–the experienced TA's perform too many valuable services. But at any rate, it *is* one of the costs which needs to be carefully appraised.

A second point made by Trow follows:

> The necessity of providing TA's also weakens control over the number of graduate students. A persuasive argument can be made that many graduate departments should admit fewer graduate students than they do, restrict entry to students who show distinct promise of being able to attain the Ph.D., and then give them the personal attention and financial support that is now diffused among a large number of relatively weak students, most of whom drop out before gaining the doctorate . . . It is difficult to see how a department could introduce such a reform, coupled with a more generous supply of graduate fellowships, and still recruit the "required" number of TA's.[22]

Trow's point that staffing needs determine the nature of TA employment is one that is confirmed by other observers.[23] Whether or not all departments should limit their enrollment to well-qualified doctoral candidates would seem to depend on how the institution views its general educational mission. But Trow's contention that the employment of large numbers of TA's *does* affect the quality of instruction seems well-founded.

New Directions for Federal and State Policy

The "Bill of Particulars" previously delineated involved many comparisons between teaching assistantships and federally financed fellowships or research assistantships, with most comparisons favoring the latter. The comparisons are inevitable because Federal funds do not generally support teaching assistantships.[24] TA monies come either from State or institutional funds, depending on whether the institution is public or private. But despite a lack of Federal support, it is precisely the attractiveness of Federal nonduty stipends which creates problems of "relative deprivation" for TA's and the universities that appoint them. Also, to the extent that able students receive nonduty stipends, they are withdrawn from the pool of potential TA's. Therefore, the Federal role vis-à-vis teaching assistants, while indirect, is nonetheless a very influential one. Since this is so, any changes in Federal policies which would improve the attractiveness of TA's ought to be considered. What kinds of changes would be desirable? Most studies of Federal policies with respect to graduate student support agree on three areas of needed improvement: equalization of support, increased support, and increases in existing stipends. Brief comments on each point seem warranted.

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[22] *Ibid.*, p. 22.

[23] See, for example, Koen and Ericksen, *op. cit., pp. 34,35.*

[24] See Seymour Warkov, Bruce Frisbie, and Alan S. Berger, *Graduate Student Finances, 1963* (Chicago: National Opinion Research Center, University of Chicago, 1965), table 2-6, where it is reported that Federal funds supported 2 percent of the TA's in the life sciences, and less than one-half of 1 percent in all other fields.

In a 1967 study of graduate assistants in the four State universities of Florida, Paul P. Fidler found that 90 percent of TA's were supported by State funds. See his *An Assessment of the Purposes of the Graduate Assistantship in the State University System of Florida: Practices, Perceptions and Proposals, op. cit.*, p. 60.

EQUALIZATION OF SUPPORT: Several tables in chapter 2 detailed the differences in stipend support among the major academic fields of study. Table 8 showed that stipends as a percent of graduate enrollment ranged (in 1965) from 14 in "education" to 68 in the "natural sciences," with 44 in "humanities" and 53 in the "social sciences." Table 9 showed that the type of stipend also varied widely, and, because of the Federal Government's role, nonduty stipends were more abundant in scientific fields. Considerations of equity fail to disclose convincing reasons for these pervasive differences. At the undergraduate level, it seems to have become stated Federal policy to assist interested students in acquiring the degree of higher education for which their abilities indicate they could profit. Such a commitment is much more tenuous at the graduate level, although society benefits at least as much, and perhaps more, from more highly specialized training. Equity, as well as the national interest, suggests that Federal policy move in the direction of establishing this wider commitment as rapidly as possible.

INCREASED SUPPORT: Since it is not being suggested that current levels of support be reduced in any field, the equalization of support among different fields will of course involve increased support. But the increased support suggested here is of a different kind, required by other factors. One is the more rapid growth in graduate than in undergraduate enrollments over recent years. From 1960 to 1965, for example, total degree-credit enrollments have increased by some 54 percent, while graduate enrollments have increased by 70 percent.[25] This differential growth rate is of long standing, and barring major interference, will doubtless continue. The implications for both State and Federal policy are clear: if the same proportion of graduate students is to be supported, then the number of stipends will have to keep pace with total growth–10 to 12 percent annually.[26] The budget planning by Federal fellowship agencies should be adjusted accordingly. In the states, since undergraduate enrollments will probably grow less rapidly in future years, similar increases in teaching-assistantship funds would make it possible for public institutions gradually to reduce the instructional loads of teaching assistants.

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[25] *Digest of Educational Statistics, 1967.* OE-10024-67, table 85; and *Summary Report: Students Enrolled for Master's and Higher Degrees, Fall, 1965,* OE-54009-65,(Washington, D.C.: Government Printing Office, 1967.)

[26] See the report of the AGS Committee on Policies in Graduate Education: "It is recommended that Federal funds provided for support of graduate students . . .should increase at least as rapidly as increases in the numbers of graduate students, i.e., of the order of at least 10 to 12 percent per year, and preferably at the more rapid rate of 15 to 20 percent per year so that the nation will be steadily progressing toward more economic use of these scarce human resources as well as the other resources of our universities." AGS *Journal of Proceedings,* 1966, *op. cit.*, p. 68.

A plea for more support, based on the growth factors mentioned, must of course take into consideration the question, How much more? To give a precise figure is probably not now possible, since the information which might justify such a figure is less than complete. Nevertheless, the kinds of considerations that would help to provide an answer can be explained, and they suggest at least a general order of magnitude. First, however, it should be pointed out that the stipend figures in chapter 2 were gathered before recent budget cuts in some Federal programs; therefore, they may reflect a level of support which no longer exists. There is no assurance, in other words, of a planned program of long-term growth in financial support proportionate to the growth in total enrollment. Second, with respect to past Federal support, information gathered by the National Academy of Sciences National Research Council on the doctoral recipients of 1966-1967 shows that approximately 41.6 percent of the students who responded received some kind of Federal financial support.[27] This figure, however, is based on a return rate of 60 percent; therefore, one cannot confidently generalize from it to the whole group of doctoral recipients.[28] By next year, however, the response rate should be much higher, and the resulting information more valid.

In determining "How much more?" it must also be borne in mind that since teaching assistantships constitute only one form of graduate stipend, they must be considered in the wider context of other forms. The report of the AGS Committee on Student Aid, quoted in chapter 3, recommended that the qualified doctoral candidate receive assurance of financial support for 4- or 5-year periods. A number of universities–Harvard, Wisconsin, U.C.L.A., Yale, and others aided by recent Ford Foundation grants–have instituted such "package" proposals, that would provide duty-free stipends in the first 2 years of graduate study, followed by a 1- or 2-year teaching assistantship, capped by a final year of full support for completion of the dissertation.[29] Obviously such a package is expensive, not only because of the additional amount required for student support, but also for regular faculty salaries for those who may have to assume some of the instruction formerly done by TA's. Assuming that it would meet the instructional needs of the institutions, how many stipends might be involved?

To approximate the number of stipends which might be appropriate, the number of graduate students enrolled in the fall of 1965 can provide an example. There were then about 359,000 first-year graduate students, 158,000 intermediate, and 20,000 terminal students.[30] Probably half of the first-year students were master's candidates, but most of the intermediate and all of the terminal students were doctoral candidates. Assuming that legitimate doctoral candidates could be identified in their 1st year of graduate study, the number of students needing support would be around 180,000 the 1st year, 100,000 in the intermediate years, and 20,000 in the terminal year, or a total of 300,000. A 60-40 division between nonduty stipends and teaching assistantships would call for 180,000 of the former and 120,000 of the latter. These figures compare with a total of about 190,000 stipends of all types, or 63,000 TA's and 126,000 RA's and fellowships in 1965 (see chapter 2). If these figures are accepted as about right for the graduate enrollment at that time, then the increases required would be 37 percent for all stipends, 30 percent for duty-free stipends, and 48 percent for TA's. This increase assumes that all genuine doctoral students would be receiving support, but of course it is based on only *one* cohort of graduate students. If the configuration were to be continued, the numbers would be larger in order to take care of overlapping cohorts. These figures are meant to illustrate general orders of magnitude, and are not intended as definitive recommendations. But they show that the potential for increased support has not been exhausted by current financial sources.

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[27] *Summary Report, 1967: Doctorate Recipients from United States Universities* (Washington, D.C.: National Research Council, R.D-1, May 1968), table 3.

[28] The number of doctoral graduates receiving Federal support was 24.7 percent of *all* doctoral graduates that year.

[29] The AGS Committee on Student Aid in 1965 recommended that "direct financial support generally be limited to five years"; and that "part-time teaching for two years is suggested as a reasonable maximum." *Journal of Proceedings and Addresses of the Association of Graduate Schools in the Association of American Universities* (Austin, Texas: The University of Texas, 1965), pp. 83 and 84.

[30] See the summary report for 1965 cited in footnote 25.

A final point concerns the adequacy of existing stipend levels. From the scanty evidence available (and it is not very recent or comprehensive), one gathers that Federal fellowship stipends have been adequate for the basic subsistence needs of unmarried students and for married students without dependents. (In the latter case, the spouse usually works.) For married students with children, however, the stipends are often not sufficient. Obviously, then, there is need for larger dependency allowances. And since graduate students suffer, like everyone else, from increases in the cost of living, there is need for an "escalator clause" tying all stipend levels to a cost-of-living index.

Redefining the purpose of the Teaching Assistantship

A basic conclusion of this study is that a restructuring and strengthening of the Graduate Teaching Assistantship is in order. Some of the needed improvements have been analyzed by the Berkeley, Michigan State, and Cornell University reports already discussed. The model suggested by Koen and Eriksen (chapter 3) also seems practical and feasible for universities desiring to improve their utilization of teaching assistants. But beyond these suggestions, which universities could begin to implement in their own internal administration, there seem to be further opportunities for reviewing, clarifying, and redefining the purposes of the assistantship so that it can serve a more effective educational function.

One way to achieve restructuring is suggested by the report of the AGS Committee on Student Aid (quoted in chapter 3), particularly that part which says: "The teaching assistantship must be viewed as part of the graduate student's education . . . . The basic premise should be that meaningful teaching experience is an essential part, and should be an integral part of a doctoral program." One might criticize this statement on the basis that it seems to require teaching experience of all doctoral students *while in graduate school,* although this is presumably not its intent. If the purpose is to ensure that all doctoral candidates have some supervised teaching experience prior to receiving their degree–and demonstrate that they have profited from it–there can be no disagreement with the premise.

A revised statement which would incorporate the requirement for teaching, without violating the other essentials of doctoral training, would simply state that all doctoral candidates must, at the appropriate time in their training, demonstrate their capacity to carry out both instructional and research tasks, to complete requirements for the degree. For students who had had teaching experience prior to their graduate work, the demonstration of such teaching competence should be brief and would pose no special problems. For those lacking the experience, some formal supervised practice would presumably be necessary. The extent of such training and the demonstration of such competence could best be determined by the student's department and/or advisory committee.

If such a statement of purpose were found acceptable, then the way might be cleared for another change in university practice–one often suggested but seldom implemented: abolition of separate teaching and research assistantships and replacing them with a single "graduate assistantship." Since every doctoral candidate would, at some time in his training program, obtain both teaching and research experience, the old invidious distinctions arising from holding one or the other (but not both) would disappear. Further, since all student would be required to have both types of training, neither group would enjoy or suffer from penalties or privileges connected with income-tax liabilities.

Of course there would be little point in establishing a unified graduate assistantship unless and until it becomes possible to provide both teaching and research training for all, or most, doctoral candidates. Since a change in name alone would scarcely conceal the inadequacies of total support, the change in nomenclature must be predicated on the implementation of recommendations for equalization of support among fields, and for more extensive support.

If this proposal for restructuring the teaching assistantship is considered impractical or undesirable, consider the following comprehensive analysis of the faults of the present TA System, and of the ways to reform it:

> Contemporary graduate education provides an opportunity for . . . an individual participation and experience in teaching, in the form of the teaching assistantship. . . . This teaching experience is comparable conceptually to the graduate student's opportunity to gain individual research experience in his dissertation project. In their present relative status, however, the two do not usually share any comparability of emphasis, significance, or prestige. The teaching assistantship is not a requirement of most graduate programs, even for the majority of doctoral students who may be expected to pursue an academic career. Even less does it represent a culminating state of graduate education, toward which a preceding sequence of advanced courses and seminars are oriented. The student doesn't have to register for a teaching assistantship,

> nor is any unit credit offered for his involvement in it. True, the opportunity is afforded for some personalized guidance through the administratively-stipulated supervision of the teaching assistant by the course instructor, but there are many indications that this may often be observed chiefly in the breach. No committee of outstanding faculty members is appointed to monitor and advance the student's progress in a graded teaching experience, nor are his achievements usually evaluated by formal appraisal, nor invariably recognized by promotion or an increment in salary, as other university achievements may sometimes be.
>
> *By and large, a major revision of both the form and substance of the teaching assistantship will have to be undertaken before it can attain its potential and desirable position as a second major focus of emphasis in American graduate education,* and one designed to introduce the doctoral candidate to and prepare him for the undergraduate teaching obligations of an academic career, in the same way and to the same extent that his dissertation experience prepares him for future career obligations in research or scholarship. *The millennium might look to an equitable demonstration of achievement in both teaching and research activities, on the part of graduate students, as prerequisite for the award of the Ph.D.*[31] [Emphasis added.]

Evidently Dean Magoun was not too hopeful that the millenium would arrive in the near future, but there are signs that his views may be winning acceptance sooner than he expected. The President of the AGS at the 1966 meeting, Dean Sanford S. Elberg of Berkeley, listed a number of needed reforms in doctoral programs, including establishment of "the principle that training both as a pedagogue and as a professional researcher is an integral part of the Ph.D., by making periods of service as teaching assistant and research assistant mandatory for each student *prior* to candidacy."[32] And at the same meeting, the Committee on Student Aid declared with respect to teaching assistants that "their teaching experience should be made an integral part of their whole doctoral program and carefully designed to produce good undergraduate teachers."[33] These quotations seem to indicate that Dean Magoun's views have expressed and reinforced a wider consensus. If Government policies and top university administrators would make it possible to implement them more widely, both graduate-teaching assistants and higher education generally would clearly benefit.

The Long-Term Future: Prospects for Improvement

The immediate outlook for graduate education is perplexing, primarily because of the uncertain impact of Selective Service on young men who are, or might otherwise have been, regularly enrolled graduate students. But a longer view of the problems of higher education must be considered. Like other crises the nation has undergone, this one will probably pass and the Nation's universities will undoubtedly survive. At some point in the future, the flow of young men and women into the Nation's graduate and professional schools will be reestablished. At that time, university faculties and administrators will be able to regroup their forces, refine and reshape their goals, and restructure many of their traditional procedures. But will they be able to cope more effectively with the TA System and its many related problems, described in detail in this volume, to which the system has given rise? What are the basic trends involved and how may they affect the outcome?

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[31] Dean Horace W. Magoun (of U.C.L.A.), chairman of the AGS Committee on Post-doctoral Education, *Journal of Proceedings and Addresses of the Association of American Universities,* 1965, p. 106.

[32] AGS, *Journal of Proceedings,* 1966, *op. cit.,* pp. 14-15.

[33] *Ibid.,* p. 28.

Anyone who has read carefully the many recent discussions of curriculum reform, of the purposes of doctoral training, and of the goals of undergraduate education must have been impressed by a new and widespread interest in the quality of teaching in higher education. How deep or lasting the interest will be, no one can now predict. But that it does exist is the impression of many experienced observers. For example, Allan Cartter, in an article on "University Teaching and Excellence," has written:

> The last ten years, beginning with Sputnik, represents a period when the overriding concern of higher education has been with research and graduate education. For the next decade, however, as can be predicted from the evolving policies of Federal agencies, private foundations, and the universities themselves, and as is underlined by the current spasms of student unrest, the primary concern of college educators will be with teaching.[34]

And in the same issue of *The Educational Record*, Martin Trow makes a similar observation as part of the introduction to his article "Undergraduate Teaching at Large State Universities":

> In the past few years, there has been a growing feeling among many American educators that undergraduate education is not getting the attention and resources that it deserves. . . . The heightened concern about undergraduate education takes many different forms.[35]

Trow's article is an analysis of the problems he believes to be inherent in the very structure of undergraduate teaching in large public institutions, and which observant readers will also find to be characteristic of large rapidly growing institutions, public or private. The most important of these characteristics Trow believes to be the following:

1. A relatively poor faculty-student ratio;
2. A research-oriented faculty with a genuine but limited interest in undergraduate teaching;
3. A student body that is on the average relatively weaker and also far

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[34] See *The Educational Record,* Vol. VII, No. 3 (Summer 1966), p. 289.

[35] *Ibid.*, p. 303.

more heterogeneous in academic ability and motivation than the student bodies at selective private colleges and universities;

4. Organizational patterns that make curriculum revision and innovation fairly easy within departments and rather difficult across departments.[36]

Of the several conclusions that Trow draws from this analysis, one is unmistakably clear:

> First, there must be an improvement in faculty resources allocated to undergraduate teaching. . . . This probably cannot be gained by rearranging teaching responsibilities or by exhorting university teachers to spend less time on research and more on teaching. Those who speak of a "flight from the classroom" seem to suggest that if that flight could be halted or reversed, undergraduates would get the teaching they need. However, I believe that inadequate teaching in the big state universities can be attributed more to the relatively small resources budgeted for undergraduates than to this alleged flight.[37]

Will the additional faculty resources materialize? Trow, in another article, did not seem optimistic:

> The problems of comprehensive higher education are endemic to the undergraduate colleges of big state universities. I doubt if they will become more selective; indeed, if the pressure for places from state residents forces them to cut back their admissions of out-of-state students, they may well become effectively less selective. . . . In any event, the enormous heterogeneity of the students will persist, and be especially marked in the first two years.[38]

The many problems posed by this conclusion are heightened by Trow's analysis of the kind of faculty recruited by the larger institutions: ". . . in the leading state universities, faculty are recruited and retained primarily on the basis of scholarly achievement or promise,"[39] and "the majority of university teachers are certainly not interested primarily in teaching."[40]

The conflict inherent in the opposing trends analyzed by Trow is described in terms remarkably similar by another astute observer of American society, Edward Shils of the University of Chicago. In a series of "Observations on the American University," he observes that the apparent chaos of American higher education is in fact marked by the gradual emergence of a national university system which, he says,

> . . . has two faces. The central universities of the country have established their predominance as research universities. Their eminence comes from the quality of the research published by their staff members and by the subsequent achievements of their Ph.D.'s in research. The standard for judging the quality of an institution is the research which its members publish. Productivity in research and publication becomes the standard

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[36] *Ibid.*, p. 316.

[37] *Id.* For information showing a strong correlation between the type of assistantship held in graduate school, and subsequent employment, see appendix B.

[38] Trow "The Undergraduate Dilemma," *op. cit.*, p. 39.

[39] *Op. cit.*, p. 306.

[40] *Ibid.*, p. 307.

> by which university and college teachers judge themselves and are judged by others. . . .
>
> Meanwhile, the number of undergraduates increases. To have a B.A. for all sorts of ill-understood reasons becomes a goal of the multitudes which many attain; and as they do so, those, through whose hands they must pass to reach that goal, care less and less about it. The teaching of undergraduates is coming to be regarded as the activity of juniors, of misfits and of eccentrics who enjoy it. . . . Undergraduates are thought of increasingly as an affliction or as a reservoir from which promising young men and women can be selected for the career of research.[41]

The constellation of forces and trends noted by these observers probably indicates the nature of the context within which universities will have to act in their attempts to improve the quality of teaching and in the relative emphasis they give to preparation for teaching in their doctoral programs. The possibility of reforms in the TA System is limited by this larger context. Universities which place a premium on the research ability of their senior faculty are unlikely to devote much attention to teaching competence in their training programs or to methods of employing junior faculty. Nor are the TA's themselves likely to be concerned about effective teaching if they see that senior colleagues are employed and promoted primarily on the basis of their reputation for research. To expect TA's and their faculty mentors to follow a reward system not prevalent in their own institutions is unrealistic.

The context within which the TA System evolves is marked, then, by conflicting trends. On the one hand, there is a noticeable new interest in the quality of teaching, caused undoubtedly in part by the very heterogeneity of the undergraduate cultural and educational background noted by Martin Trow. At the same time, there is a pervasive, powerful public sentiment to further democratize higher education—to make it possible for *all* qualified American youths to obtain at least 2 years of formal education beyond high school. In the past 10 years much progress has been made in achieving this goal, primarily through new Federal programs of student loans and grants and by direct Federal and State assistance for expansion of physical facilities to accommodate larger numbers of students. Additional efforts in this direction can surely be expected.

But, as Trow and Shils have noted, at the same time that higher education becomes more widely available, the social value of a bachelor's degree declines, and with it, the interest of the faculty in undergraduate, particularly lower division, teaching. The reward system within universities which accords priority to research and advanced-level training is sustained and reinforced by Federal programs which provide financial support for the same purposes. Can individuals or institutions ignore or combat these pressures? Only, it seems, if the general public is sufficiently concerned about the quality of teaching to accord it a higher priority, and, in turn, if it is reinforced by tangible financial support of a magnitude much larger than any heretofore provided.

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[41] Edward Shils, "Observations on the American University," *Universities Quarterly*, Vol. XVII, No. 2 (March 1963), pp. 184,185.

APPENDIX A

Statistical Tables

Table A-1. Growth in Regular Faculty and in Junior Instructional Staff, 1953–1965

Year	Faculty for Resident Instruction, Instructor or Above		Junior Instructional Staff		
	Number	Full-Time Equivalent	Number	% of Col. 2	% of Col. 3
1	2	3	4	5	6
1953	182,028	140,304	26,519	14.6	18.9
1955	197,791	151,322	30,138	15.2	19.9
1957	226,536	177,554	33,950	15.0	19.1
1959	244,461	189,283	38,619	15.8	20.4
1961	266,624	208,277	46,063	17.3	22.1
1963	305,459	237,367	52,694	17.3	22.2
1965	367,000	285,000	65,000	17.7	22.8

Sources: For the years 1953–63, *Faculty and Other Professional Staff in Institutions of Higher Education, Fall Term, 1963–64,* Dept. of Health, Education, and Welfare, Office of Education, OE-53000-64, Circular No. 794 (Washington, D.C.: GPO, 1966), table 13, p. 18. For 1965, *Projections of Educational Statistics to 1975–76,* by Kenneth A. Simon and Marie G. Fullam, Dept. of Health, Education, and Welfare, Office of Education, OE-10030-66 (Washington, D.C.: Government Printing Office, 1966), tables 27 and 28, pp. 49 and 51.

Table A-2. Total Junior Instructional Staff, and Number and Percent in Public and Private Institutions, 1955 to 1963

Year	Total Jr. Instructional Staff	Jr. Instructional Staff in Public Institutions		Jr. Instructional Staff in Private Institutions	
	Number	Number	%	Number	%
1955	30,138	15,715	52.1	14,423	47.9
1957	33,950	18,577	54.7	15,373	45.3
1959	38,619	22,059	57.1	16,560	42.9
1961	46,063	27,605	59.9	18,458	40.1
1963	52,694	33,816	64.2	18,878	35.8
% Increase	74.8	115.2	–	30.9	–

Source: *Faculty and Other Professional Staff, 1961–62, op. cit.,* p. 89; *ibid., 1963–64,* table 6, p. 9.

Table A-3. Number and Percent of Graduate Student Stipends, by Academic Fields and Areas, 1965*

Academic Fields and Areas	Graduate Enroll-ments	All Stipends		Teaching Assistantships		Research Assistantships		Fellowships		Scholarships	
		Number	% of Enroll-ments	Number	% of Stipends	Number	% of Stipends	Number	%of Stipends	Number	% of Stipends
Education	133,476	32,222	24	6,872	21	3,500	11	8,956	28	12,887	40
Humanities											
English and Journalism	22,660	11,363	50	4,879	43	425	4	3,569	31	2,488	22
Fine and Applied Arts	15,015	7,307	49	3,153	43	500	7	1,626	22	2,027	28
Foreign Languages	12,105	8,612	71	3,386	45	547	7	2,791	32	1,386	16
Philosophy	3,449	2,712	79	846	31	177	7	1,173	43	519	19
Subtotal	53,229	29,999	56	12,764	42	1,649	6	9,159	31	6,420	21
Professional Fields											
Business and Commerce	43,997	14,899	34	2,429	16	1,889	13	2,213	15	8,367	56
Health Professions	8,234	6,346	77	572	9	1,729	27	3,301	52	743	12
Library Science	7,563	2,252	30	280	13	113	5	455	20	1,402	62
Religion	6,110	4,517	74	463	10	60	1	2,137	48	1,855	41
Social Work-Social Admin.	8,901	7,109	80	37	1	200	3	4,914	69	1,955	27
Subtotal	78,805	35,123	47	3,781	11	3,991	12	13,020	37	14,322	40
Science Fields											
Biological Sciences	23,660	22,421	95	6,570	29	6,109	27	7,377	33	2,363	11
Physical Sciences	34,061	34,126	100	11,570	34	10,660	31	7,475	22	4,420	13
Mathematics & Statistics	18,226	13,150	72	4,844	37	1,476	11	3,968	30	2,860	22
Agriculture & Forestry	5,621	5,414	96	503	9	3,274	61	1,144	21	493	9
Engineering	54,318	32,745	60	4,719	14	8,860	27	9,727	30	9,438	29

Subtotal	135,886	107,856	79	28,206	26	30,379	28	29,691	28	19,574	18
Social & Behavioral Sci.											
Psychology	13,732	9,977	73	2,707	27	3,231	32	2,991	30	1,047	11
History	14,565	7,816	54	2,619	33	649	8	3,017	39	1,529	20
All other Soc. Sci.	36,340	22,556	62	5,273	23	4,908	22	8,145	36	4,229	19
Subtotal	64,637	40,349	62	10,599	26	8,788	22	14,153	35	6,805	17
Miscellaneous	15,490	5,388	35	1,190	22	736	14	1,644	30	1,816	34
Grand Total*	477,535	250,937	53	63,412	25	49,043	19	76,623	31	61,824	25

Source: Hunter, *The Academic and Financial Status of Graduate Students, op. cit.*

*Since the survey data are based on a sample, results have been "blown up" to represent that portion of the fall, 1964, graduate enrollment which they represent. Consequently, all numbers have been rounded, and both numbers and percents are approximate.

Table A-4. Profile of Graduate Student Stipend Holders, by Hours per Week Worked for Stipend, 1965

ITEM	Totals		% Working Specified Hours							
	Number	%	Under 10 hrs.	10 to 14 hours	15 to 19 hours	20 to 24 hours	25 to 29 hours	30 to 34 hours	35 to 39 hours	40 and over
Sex										
Men	83,375	80	12	16	14	34	3	4	2	15
Women	21,409	20	17	15	14	28	5	5	3	13
Age										
23 and under	20,823	20	14	18	18	30	3	4	2	11
24 to 28	54,157	52	12	15	12	35	4	5	2	15
29 and over	29,805	28	14	14	13	32	3	4	3	17
Parental Socio-economic status										
High	32,772	31	13	16	14	34	3	5	2	13
Low	72,016	69	13	15	13	33	4	4	2	16
Enrollment Status										
Full time	77,158	74	13	16	14	33	3	4	2	15
Part time	27,630	26	13	13	12	34	5	5	2	16
Marital Status										
Single, no dependents	47,880	46	12	17	15	34	3	5	2	12
Single, dependents	3,176	3	8	16	19	30	7		8	12
Married, no dependents	24,751	23	14	13	14	32	4	5	2	16
Married, dependents	28,972	28	14	14	11	33	4	4	1	19

Academic Progress										
Master's Candidates										
Less than 1 year	**22,407**	**22**	**14**	**20**	**18**	**28**	**4**	**4**	**2**	**10**
More than 1 year	**34,577**	**34**	**13**	**14**	**14**	**35**	**4**	**4**	**2**	**14**
Ph.D. Candidates										
Over 1 year										
Not working on thesis	**10,770**	**11**	**15**	**14**	**12**	**40**	**3**	**3**	**2**	**11**
Working on thesis	**33,485**	**33**	**12**	**14**	**10**	**32**	**3**	**6**	**2**	**20**

Source: OE Survey of 1965, *op. cit.*

APPENDIX B

The Relationship Between Experience as a Graduate Teaching or Research Assistant and Later Postdoctoral Employment

The purpose of this appendix is to present, and to analyze briefly, some data which have recently become available on the relationship between work as a graduate assistant and subsequent employment. The data have been drawn from the Doctorate Records File of the National Academy of Sciences–National Research Council, and reflect the graduate school experience and subsequent employment of all United States doctoral graduates of 1966 through 1968.

Table B-1 shows the number of doctoral graduates who were employed by colleges and universities or by "all other" employers; the number who had had experience in graduate school as teaching or research assistants; and the mean number of semesters' experience as TA or RA. It is this mean number of semesters' experience which provides the interesting comparison in the table. For as one glances down columns (1) and (2), from "Biological Sciences" through "Humanities, Arts, and Professions," it becomes apparent that those who were employed in higher education had had more extensive experience as TA's than those employed by "all other" employers. This is true of all major academic areas.

Turning to columns (3) and (4), one finds that the converse is generally true. That is, those employed by "all other" employers had had more extensive experience as RA's than those who were employed by colleges or universities. The only apparent exception is in "Humanities, Arts, and Professions," where the difference in experience is negligible, and is accounted for by the fact that hardly any of the graduates in the arts and humanities are employed outside of higher education.

Table B-1 shows employers in only two categories–colleges and universities, and "all other." Table B-2 provides further detail on the type of function performed within colleges and universities by all those graduates employed by these institutions. And as one glances through the table, it becomes apparent that (1) those teaching had had more experience as TA's than as RA's, and (2) those performing research in higher education had had more experience as RA's than as TA's. These two conclusions hold true in each academic area shown. There are no exceptions.

The data presented in the two tables show a remarkably consistent and strong pattern. More specifically, they show that the experience of teaching in graduate school is closely associated with later employment in higher education and with teaching in a college or university; and that, conversely, experience as a research assistant in graduate school is strongly correlated with later employment in research, either in higher education or, to an even greater degree, in activities and organizations other than higher education.

A strong correlation, such as that shown by these data, does not, of course, prove the existence of a simple cause-and-effect relationship. Another explanation might be that a strong interest or disposition prior to graduate school led individuals to seek either a teaching or a research assistantship, and that the experience so gained provided the incentive, as well as the qualifying experience, for subsequent employment in a similar type of activity. In other words, the TA or RA experience reinforced and confirmed an earlier interest.

In either case it seems clear that there is a strong tendency for behavior patterns to be consistent, in graduate school and beyond, as regards the teaching/research differential. This suggests that all students who are interested and qualified should be given the opportunity to serve in both kinds of appointment, so that they could make their career choices on the basis of first-hand experience.

Table B-1. Relationship Between Experience as a Graduate Assistant and Postdoctoral Employment: U.S. Doctoral Graduates of 1966–68 (Men Only),* by Major Academic Area

Academic Area	Postdoctoral Employers of:			
	Teaching Assistants		Research Assistants	
	College or University	All Other	College or University	All Other
	(1)	(2)	(3)	(4)
1. *Biological Sciences*				
a. No. of doctoral graduates	949	581	1178	986
b. Mean No. of Semesters' Experience	4.27	3.77	4.61	4.89
2. *Engineering, Mathematics, Phys. Sciences*				
a. No. of doctoral graduates	2758	3260	2696	3684
b. Mean No. of Semesters' Experience	4.10	3.81	4.47	4.74
3. *Social Sciences (including Psychology)*				
a. No. of doctoral graduates	1897	628	1261	561
b. Mean No. of Semesters' Experience	3.65	3.40	3.52	3.63
4. *Humanities, Arts, Professions*				
a. No. of doctoral graduates	2796	591	869	431
b. Mean No. of Semesters' Experience	4.02	3.38	3.10	3.08

*Although data shown here are for men only, the same trends are evident in the figures for men and women graduates combined. However, the women graduates tend to be concentrated primarily in the nonscience fields.

Source: Office of Scientific Personnel, National Academy of Sciences–National Research Council. Previously unpublished data supplied through courtesy of Dr. Lindsey R. Harmon, Director of Research.

Table B-2. Postdoctoral Employment in Higher Education, by Major Function and Academic Area: Doctoral Graduates of 1966–68 (Men Only)

Biological Sciences

Nature of Employment in Higher Education	Mean Number of Semesters' Experience of Graduates Who Were:	
	Teaching Assistants (N = 949)	Research Assistants (N = 1178)
1. Teaching (N = 427)	4.93	4.25
2. Research (N = 142)	3.70	5.10
3. Administration (N = 7)	6.29	3.56
4. Other (N = 373)	3.69	4.59

Engineering, Mathematics and Physical Sciences

Nature of Employment in Higher Education	Mean Number of Semesters' Experience of Graduates Who Were:	
	Teaching Assistants (N = 2758)	Research Assistants (N = 2696)
1. Teaching (N = 1416)	4.58	4.16
2. Research (N = 414)	3.70	4.81
3. Administration (N = 10)	3.80	5.00
4. Other (N = 920)	3.55	4.63

Social Sciences (Including Psychology)

Nature of Employment in Higher Education	Mean Number of Semesters' Experience of Graduates Who Were:	
	Teaching Assistants (N = 1897)	Research Assistants (N = 1260)
1. Teaching (N = 1538)	3.71	3.31
2. Research (N = 124)	3.56	4.22
3. Administration (N = 15)	3.87	2.33
4. Other (N = 220)	3.28	3.84

Humanities, Arts and Professions (Including Education)

Nature of Employment in Higher Education	Mean Number of Semesters' Experience of Graduates Who Were:	
	Teaching Assistants (N = 2796)	Research Assistants (N = 869)
1. Teaching (N = 2390)	4.15	2.94
2. Research (N = 63)	3.02	4.25
3. Administration (N = 16)	2.97	2.78
4. Other (N = 182)	3.52	3.30

Source: National Academy of Sciences-National Research Council. Previously unpublished data supplied through courtesy of Dr. Lindsey R. Harmon, Director of Research, Office of Scientific Personnel.